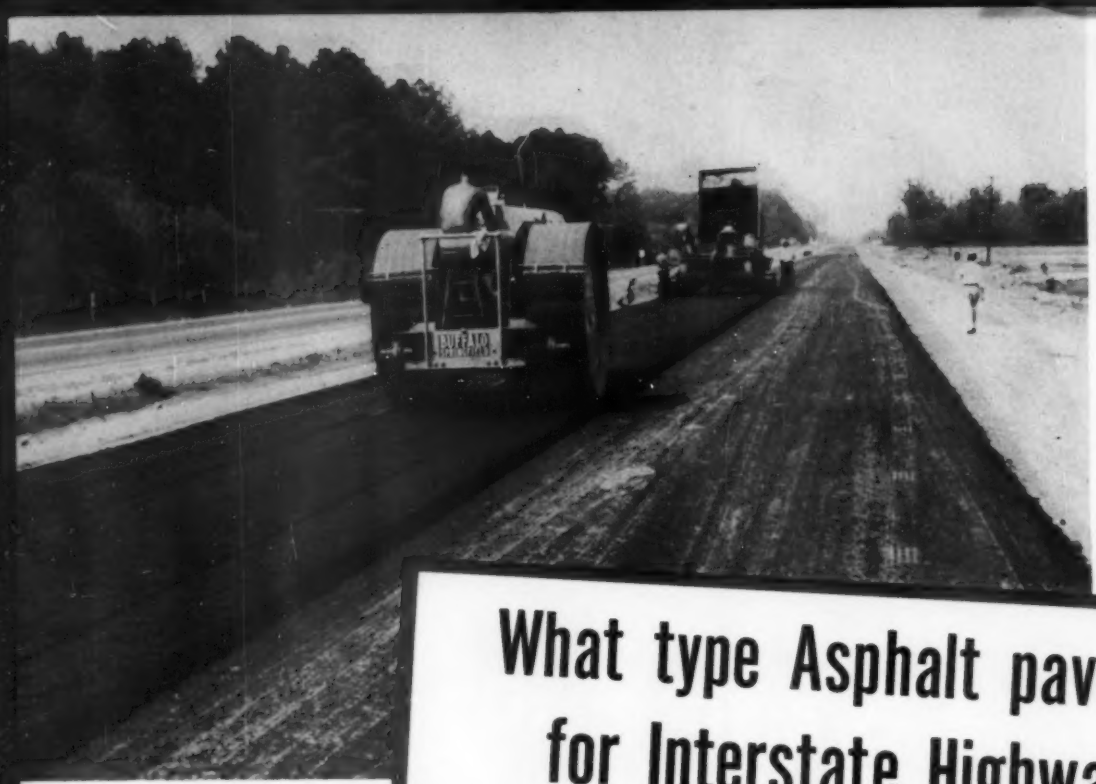
APRIL 1948

American City

Nation's top AWWA officials meet at Dallas, Texas, for their annual conference April 20-25. See page 3.



Laying one course of the 7½-inch Texaco Asphaltic Concrete foundation on US Route 301 in Sussex County, Va.

Contractor
Adams Construction Co.
Roanoke, Va.

What type Asphalt pavement for Interstate Highways?

Virginia supplies one answer to that question on the new northbound lane under construction on 11 miles of US Route 301. The most heavily traveled north-south truck route across Virginia, US-301 is part of the new Interstate Highway System.

The foundation for this important project consists of a 7½-inch thickness of coarse-graded, plant-mixed Texaco Asphaltic Concrete, laid in three courses on an 8-inch subbase of selected borrow material. The wearing surface is plant-mixed Texaco Sand Asphalt, laid to a compacted thickness of 1½ inches.

This is one of a number of heavy-duty asphalt pavement designs suitable for Interstate Highway traffic.

Asphalt highways are equal in durability, lower in average upkeep cost, superior in riding quality and *cost substantially less* than rigid highways having the same load-bearing capacity. The important savings afforded by Asphalt become more and more vital to highway officials and motorists, as a result of currently rising road building costs.

ENGINEERING • RESEARCH • EDUCATION
THE ASPHALT INSTITUTE
MEMBER

Helpful information on methods and materials recommended for all types of Asphalt construction for highways and streets is provided in two free Texaco booklets. Copies may be obtained without obligation by writing our nearest office.

The existing asphalt pavement on US-301 will be the southbound lane of the new, divided Interstate Highway.

Section of the Plant-Mixed Texaco Sand-Asphalt wearing surface on new, northbound lane of US-301.

THE TEXAS COMPANY, Asphalt Sales Div., 135 E. 42nd Street, New York City 17
Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Minneapolis 3 Philadelphia 2 Richmond 19

TEXACO
REG. T. M.

TEXACO ASPHALT

APRIL 1958

The American City

A Buttenheim Publication

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COVER PHOTO

During the week of April 20-25, some 3,000 water works officials, engineers, and technicians will gather in Dallas, Texas, for the American Water Works Association's annual conference on the complex problem of providing enough water for the nation's growing population and thirsty industries. This will be the Association's 77th annual meeting.

The photograph shows Henry J. Graeser, superintendent of the Dallas system, Professor Fred Merryfield, this year's AWWA president, and Harry E. Jordan, executive secretary, at one of Dallas' water works installations. For more about the Dallas water works, see page 174.

Water Supply and Treatment

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How Good Earnings for the Telephone Company Benefit the Telephone User

Good earnings provide both the incentive and the means for better telephone service and greater value.

But if earnings are low, and all energies and judgments must be directed to meet the pressing needs of the moment, it becomes impossible to do the best for the long run.

For a practical illustration, let's take a telephone engineer who is figuring out what size telephone cable should be installed to serve a growing neighborhood.

He knows it must serve 200 homes right away. He's reasonably sure also that in another couple of years perhaps 200 more homes will want service. Putting in a cable today that is big enough to serve all 400 homes will cost more at the start.

However, putting in a smaller cable today that will serve only 200, and another of equal size two years later, will cost a lot more in the end.

What will the engineer do?

If the company is pinched for money, he'll have to put in the smaller cable, even though this will be more expensive in the long run.

But if the company is in good financial shape—

If it can readily get the capital required for the big cable—

And if the general level of earnings justifies absorbing the temporarily higher cost of the larger cable until the time when its full capacity is utilized—

Then the engineer will decide to go ahead with the larger cable. Over the years this will save money for both the company and telephone users, and produce the best service.

Telephone people are called on to make decisions like this, day in and day out. In all these decisions good earnings are essential to assure the greatest economy and progress.

There is nothing to justify the philosophy that keeping telephone earnings low is the way to insure low rates.

Such a policy, by limiting progress and long-range economies, leads inevitably to poorer service at a higher price than the customer would otherwise have to pay.

BELL TELEPHONE SYSTEM

Slums Need a "Weed Control" Ordinance

CITIES need every tool they can get to implement their slum clearance and urban renewal work. Particularly do they need one that can work at the local government level, unhampered by federal or state supervision or control, untroubled by any need to slice asunder neighborhood or community ties that form the culture of a city, and unencumbered by a Fort Knox price tag.

No one questions the fact that slums are a blight to a city, that they endanger health, create firetraps, encourage crime, immorality, depress neighborhood property values. Everyone agrees that slums are bad.

Unfortunately, however, they generally are not financially bad. One cannot escape the fact that a slum property can be a profitable investment.

A slum requires little or no maintenance, enjoys relatively low taxes, and brings in a very good return in rentals. One of the chronic stumbling blocks to urban renewal has been the high cost of acquiring the property itself. And one of the chief functions of the federal government's program has been that of writing off this high cost of the slum property itself.

Many have cried out against this policy. Only recently Milwaukee's Mayor Frank P. Zeidler protested that ". . . it rewards the worst slum owners for their anti-social conduct by paying them sound prices for buildings that the Building Inspector's Department should condemn."*

In many blighted areas this can be corrected by what we like to call a "weed control" ordinance. Let the city establish workable standards for cleanliness, sanitation, structural soundness, general appearance, number of occupants. If the owner then fails to meet these standards and refuses to remedy the conditions, let the city make the corrections and charge him for them. Then let the city place a lien against the property to insure payment of these needed construction measures.

Thus, no property owner would be encouraged by his own city tax structure to allow homes to deteriorate into blighted neighborhoods.

The familiar "weed control" ordinance provides the precedent. If a property owner has untended land within a city that he lets grow rank with weeds, the city has the power under such an ordinance, to cut the weeds and charge the property owner for the work, placing a lien against the property to insure payment.

A slum is another type of weed. This is a tool that can be used on the local government level to help root out these civic blights.

---

* *Journal of Housing*, October 1957.

THE AMERICAN CITY

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VOLUME 73
NUMBER 4

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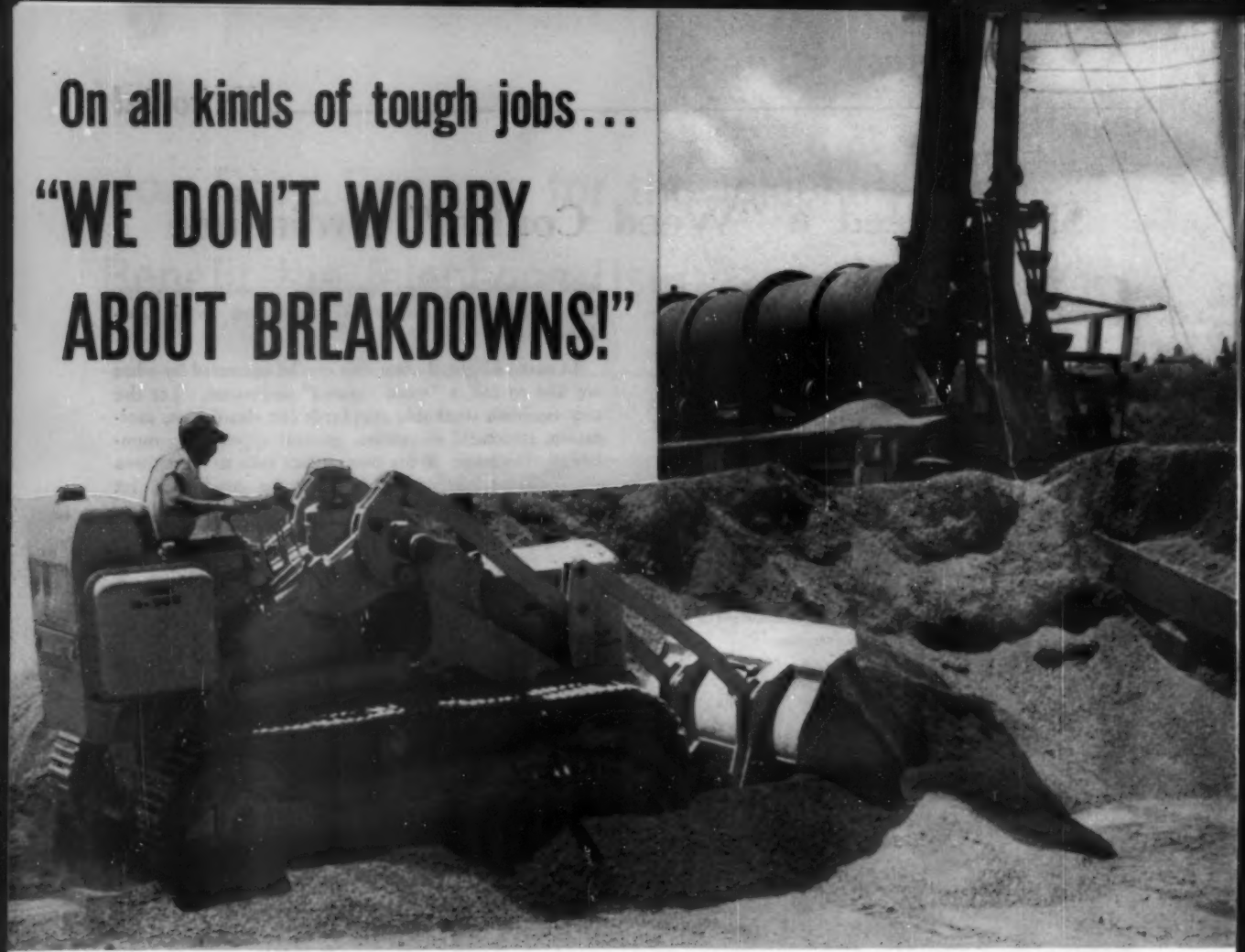

CAT* No. 955 Traxcavator feeds ⅜ minus aggregate at asphalt plant near The Dalles, Ore. "This is a real all-purpose machine," says Supt. Jim Manes.

That's a Caterpillar No. 955 Traxcavator* going eight hours a day at an asphalt plant for the City of The Dalles, Oregon. Jim Manes, Street & Sewer Supt., chooses Caterpillar for several reasons. He likes the Traxcavator for its versatility, and its easy-handling controls. "Our No. 955 Traxcavator operates economically and it does a multitude of jobs. *And we don't have to worry about breakdowns.* We've run it now for a year with practically no upkeep. In fact, our experience with Cat-built equipment has been a story of low-cost maintenance."

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YOUR TAXPAYERS GET THEIR MONEY'S WORTH WITH CAT-BUILT MACHINES

Mail Bag

Widespread Requests For Special Assessment Procedure

You will be interested to know that the article we recently had in your magazine on the special assessment procedure for street improvements has resulted in requests for copies of our procedure from 33 cities in 21 states. (See "Pamphlet Explains Assessment Procedure," p. 11, February 1958).

The requests came from the largest to the smallest cities and I certainly think that it is a good indication of public officials interest in your very fine publication.

PETER F. ROAN
City Manager
Iowa City, Iowa

Sand Planning and Zoning

I have read with much interest the three articles on sand and gravel zoning in your January issue ("Getting Rid of Sand Pits," pp. 98-100). I was particularly interested in the article regarding Northport's Rehabilitation Ordinance, as I was Northport's Village Attorney at the time of its adoption. For the benefit of those who may have similar problems, I should like to clarify thus:

First let me state that any municipality that has a sand pit problem can control it, and, in many instances, stop the operation, at least in states where zoning has been generally accepted. In Northport we were able to get, and did get, an injunction against the gravel pit and it was as a result of this injunction that we were able to proceed to the Rehabilitation Ordinance.

Second, we were never blocked by the old theory that a municipality could not stop the removal by an owner of natural resources from his land. Before the time of our legal battle there had been several court decisions adverse to this old theory handed down in New York and other states.

The particularly novel point in the Northport Rehabilitation Ordinance was the fact that its provisions moved apace with the digging. When digging was complete, in accord with specifications, in each specific section, that section had to be graded and developed by the gravel company for residential purposes. There was, furthermore, an absolute time limit of twelve years on sand and gravel operations, including rehabilitation of the affected area.

The genesis of this idea in the Northport Ordinance was in a Queens County, N. Y. case that permitted a temporary gas station in an undeveloped residential district. The ruling in this case provided that as residences took over the area the gas station must be eliminated. New York State courts upheld this ruling.

I and the zoning experts I consulted were convinced that our Northport Rehabilitation Ordinance would be sustained by the courts. We have never had to take the matter into court.

WILLIAM G. BUSHELL, *Esq.*
Northport, N. Y.

Decimal Point Slipped?

The Water Resources Council must have a slippery decimal point when it gave you the figures on the water that collects on a 20-foot wide pavement ("Water Conservation Four-Point Program," p. 15, January).

If you have a 20-foot wide strip subject to an annual rainfall of 30 inches, you can collect 1.975 million gallons, not *198* million. If you were to collect 198 million gallons, your street would have to be 2,000 feet wide.

This problem of water supply is of such moment that one must look at all calculations with a "fishy eye" until proven correct.

CLARK B. CARPENTER
Consulting Engineer
Golden, Colo.

* * *

This is primarily an excuse to let you know how much we enjoy your excellent magazine.

However, in your January 1958 issue, it appears that in the article on page 15 relative to water conservation someone misplaced several decimal points. As you know, it takes three acre feet of water to make one million gallons. Consequently, I doubt that the runoff from slightly more than two acres of street surface would furnish 198 million gallons of water yearly, or that 5,725 acres of airport structures could supply the needs of 100,000 persons. In the first example, the area would provide less than one million gallons yearly, while in the second case, the average yearly rainfall would have to exceed three feet to produce the quantities as indicated.

ARTHUR PICKETT
Division Engineer
Los Angeles County
Los Angeles, Calif.

* * *

Actually our statistical rundown should show that a 100-mile long stretch of pavement collects about 198 million gallons of water in most of the United States. So, as you suggest, the decimal is off by two points.

The error is ours, which again proves the inherent occupational need for good proofreaders.

ALBIN DEARING
Chairman Pro Tem
Water Resources Council
New York, N. Y.

Omit Columns in Parking Garages

I have just finished reading, with considerable interest, the article by Arvah B. Hopkins, city manager, Tallahassee, Fla. (See "$700 Per Car Space Builds Tallahassee Garage, October 1957, p. 149).

Most interesting is the reference to 60-degree angle parking with no columns. This parallels our own thinking, and is the conclusion we arrived at some time ago. We are presently completing a design for a 350-unit garage, using the no-column system. With a car-manufacturing philosophy which decrees longer, lower, wider cars each year, it would be sheer fallacy to design for between-column parking.

In addition to coping with the parking and circulation problem we also have snow and ice conditions which require some special consideration.

What Mr. Hopkins says is quite true, but certainly not original. After all, there are some architects who consider function first, and whose only monument is that which is inscribed posthumously on a cemetery stone.

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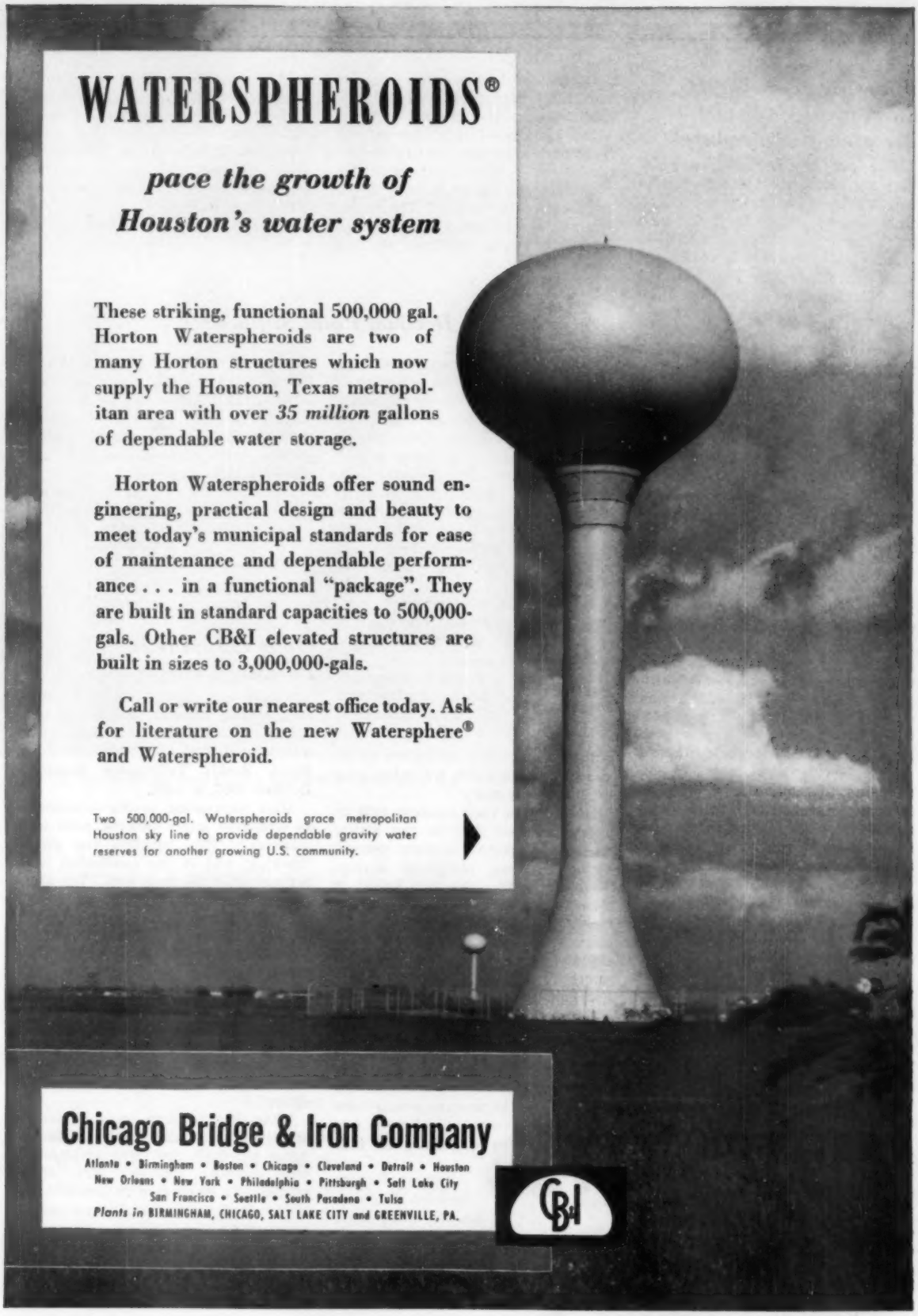
Two 500,000-gal. Waterspheroids grace metropolitan Houston sky line to provide dependable gravity water reserves for another growing U.S. community.



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CBI

Lewis S. Finch
AWWA President-Elect

Lauren W. Grayson
AWWA Vice President-Elect

William J. Orchard
AWWA Treasurer

American Water Works Association to Install New Officers

LEWIS S. FINCH, Lauren W. Grayson and William J. Orchard take over the duties of president, vice president, and treasurer, respectively, of AWWA at the annual convention to be held this month in Dallas. The nominating committee presented this slate of candidates at the annual meeting of the Association's Board of Directors on January 26.

Lewis S. Finch, 1957 AWWA vice president, is vice president and chief engineer of the Indianapolis Water Company, Indianapolis, Ind. In 1949 Mr. Finch received the Association's George Warren Fuller Award for outstanding service in the field of public water supply. He served as vice chairman and chairman of the Association's Indiana section and represented that section on the Association's Board of Directors from 1952 to 1955.

Lauren W. Grayson is chief engineer and general manager of the Public Service Department of Glendale, Calif. Mr. Grayson became a member of AWWA in 1933 and since then has served on many of the Association's committees. He served on the executive committee of the California Section from 1946 to 1950 and represented that section on the Association's Board of Directors from 1952 to 1954.

William J. Orchard begins his second term as treasurer of AWWA this month. He entered the employ of Wallace & Tiernan, Inc. in 1915 and rose to the position of general manager, which he held until his retirement in 1954. He now serves as a member of the board of directors of the company and also acts as consultant.

Mr. Orchard became a member of AWWA in 1917, served four 3-year terms as a director and held the office of chairman of the Association's finance committee. He became an honorary member in 1937, received the John M. Diven Medal in 1954 and the Harry E. Jordan Achievement Award in 1956 for distinguished service outside the line of duty.

At this year's convention honorary memberships will be presented to the following:

Morrison B. Cunningham, director of public Works, Oklahoma City, Okla.

Victor M. Ehlers, director, Division of Sanitary Engineering, Texas State Department of Health.

Fred G. Gordon, assistant chief engineer, Bureau of Engineering, Department of Public Works, Chicago, Ill.

Louis F. Warrick, sanitary engineer, director, chief, Technical Services Branch, Public Health Service, Washington, D. C.

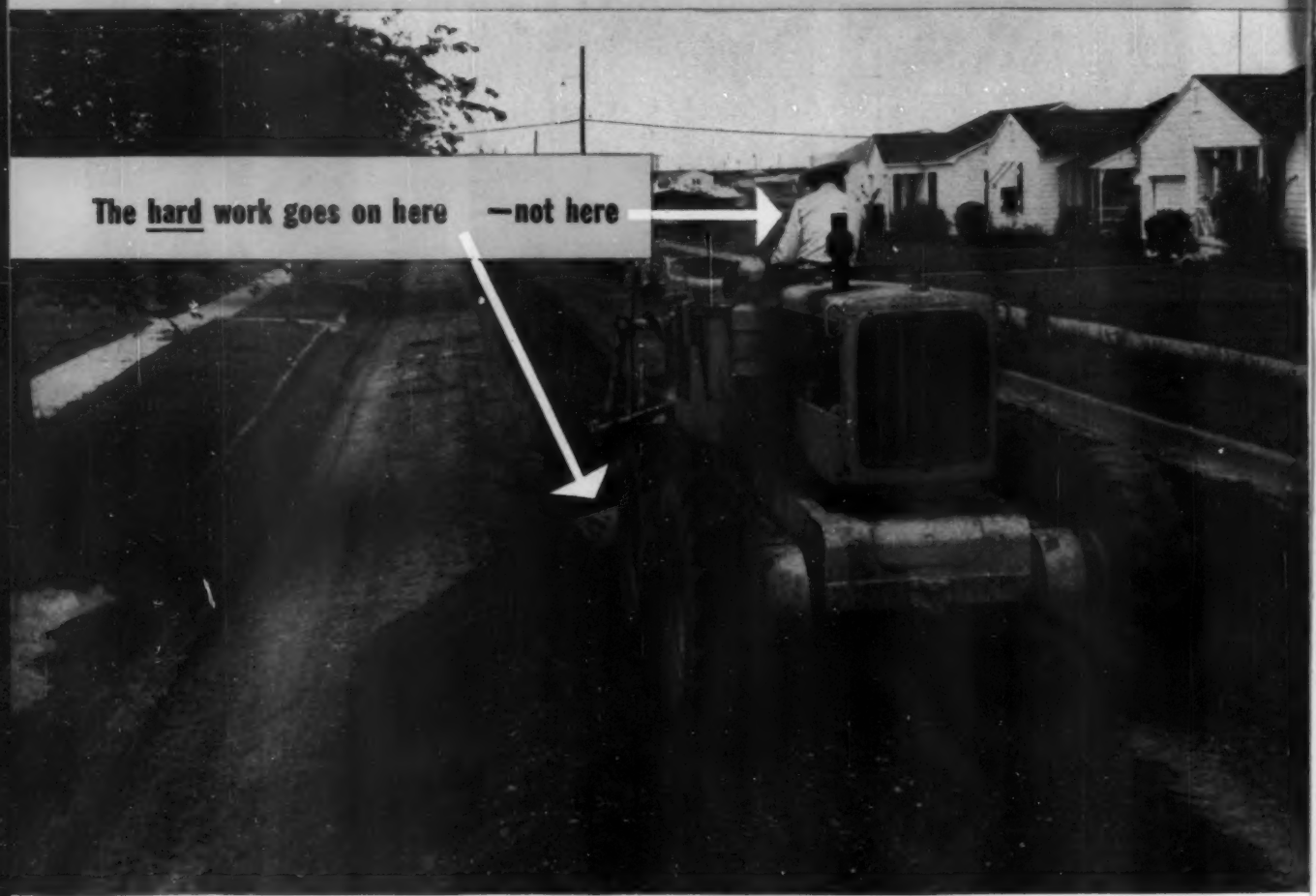
The 1957 Diven Medal goes to **Ray L. Derby,** principal sanitary engineer, Los Angeles Department of Water and Power, and the Goodell Prize to **H. O. Hartung,** production superintendent, St. Louis County Water Company.

Reverse Pumping at Long Beach, Calif.

MOST cities pump water out of the ground, but Long Beach, Calif. is pumping it in. This is part of its program to check ground subsidence caused by the city's long and profitable program of oil development from the tidelands that are owned by the municipality.

Water injection is scheduled at 22,000 barrels per day and will be increased to 180,000 barrels. The city expects to provide 25 injection wells at a cost not to exceed $4 million for the total water injection installation. This program is only a start of what may ultimately reach one million barrels per day in the entire Wilmington Oil Field, of which approximately 45% is city-administered tidelands.

How to build a block a day—sitting down!



Rebuilding 16th Street between Ft. Worth Street and Dallas Street, Grand Prairie, Texas.

It's an old asphalt street, so first you scarify the old asphalt—with a CAT No. 112 Motor Grader.

Second, break the chunks with a sheepsfoot.

Third, mix with 4" of gravel—with the No. 112.

Fourth, level with the No. 112 and shoot a one-shot penetration of RC2 asphalt.

And that's that.

In Grand Prairie, Texas, they do it a block a day.

And you can work Cat Motor Graders sitting down. Just look at the operator on Grand Prairie's No. 112. Comfortable, in complete control of the job, no strain.

It's the low frame design of the No. 112, and its dashboard-mounted lift gears, that make the visibility so good, even when the operator is sitting. It's the precise mechanical controls that make blade positioning so accurate. And it's the curved side shift rack that makes a wide range of movements so easy. Scores of other Caterpillar engineering advances make these versatile yellow machines as much a bargain for your city as for Grand Prairie. Find out for yourself. Ask for an on-*your*-job demonstration, right now! Call your Caterpillar Dealer. Ask about making the hard work *easy*.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

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YOUR TAX DOLLAR'S BEST BUY

Street Construction & Maintenance

Big Ripper Speeds Maintenance Work

FOR the last three years the City of Los Angeles has been ripping up its streets with a specially built tool. This consists of a hydraulic ripper mounted on the rear of a bulldozer-equipped Tournatractor. Crook Company, LeTourneau - Westinghouse distributor in Los Angeles, built the ripper.

Los Angeles' highly mobile ripper is in constant demand by maintenance crews.

One Shank Used

Although the ripper is designed to operate with five teeth, the city prefers using only one shank, not for lack of power, but because it shreds the broken pavement better with one point.

Edmund M. Butler, operator of the unit, works with any maintenance crew that has need for the big ripper. He travels to and from the job through the traffic of Los Angeles streets under a special permit enabling the Tournatractor to travel on the streets. Some days it travels as much as 100 miles, and does 3 or 4 separate jobs at different locations. In the past three years the ripper has worn out 100 teeth and six shanks.

According to operator Butler, the machine paid for itself on the first job. It is so powerful that it slices through a macadam street like a hot knife through butter. With speed, power and mobility combined in one unit, it serves as an excellent street maintenance tool.

More Expressways for the Chicago Area

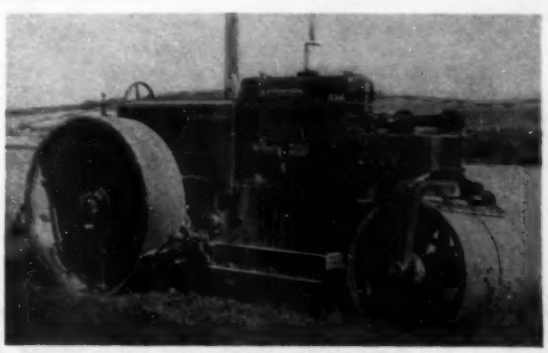
THE 1958 highway program for Cook County, Ill., recently submitted to the Board of County Commissioners, carries a price tag of $115,960,200. Construction and right-of-way acquisitions on eight expressway routes will take almost $107,000,000, and about $7½ million will go toward 58 projects of improvement and right-of-way acquisitions on non-expressway streets and roads in Chicago and throughout the suburban area. The program also includes $1.5 million for study, land acquisition and construction of the "4-mile grid" expressway system.

This year will see considerable activity centered on three uncompleted sections of Congress Street under construction by the county and on the Northwest expressway section connecting with O'Hare Airport. Plans call for all of the Northwest expressway between O'Hare Airport and the interchange with Edens expressway in the vicinity of Montrose and Cicero Avenues to be under contract in 1958. This program alone includes the construction of 26 grade separation structures and two bridges over the Des Plaines River plus eight structures in the complicated interchange with the Illinois toll road system.

Other projects included in the program involve over 20 grade separations, several interchanges, drainage pumping stations, demolition, and roadway lighting.

Revitalized Roller Still Does the Job

THE Town of Cohocton, N. Y., gave new life to its ailing street roller by installing an International Model V-164, four-cyclinder gasoline engine. Mounting the new engine on the 10-ton Buffalo-Springfield roller required no major changes. It was fitted with a double-chain sprocket on the flywheel stub shaft and drives a double-chain sprocket on a roller transmission-input shaft. The changeover also required an extension of the governor control.

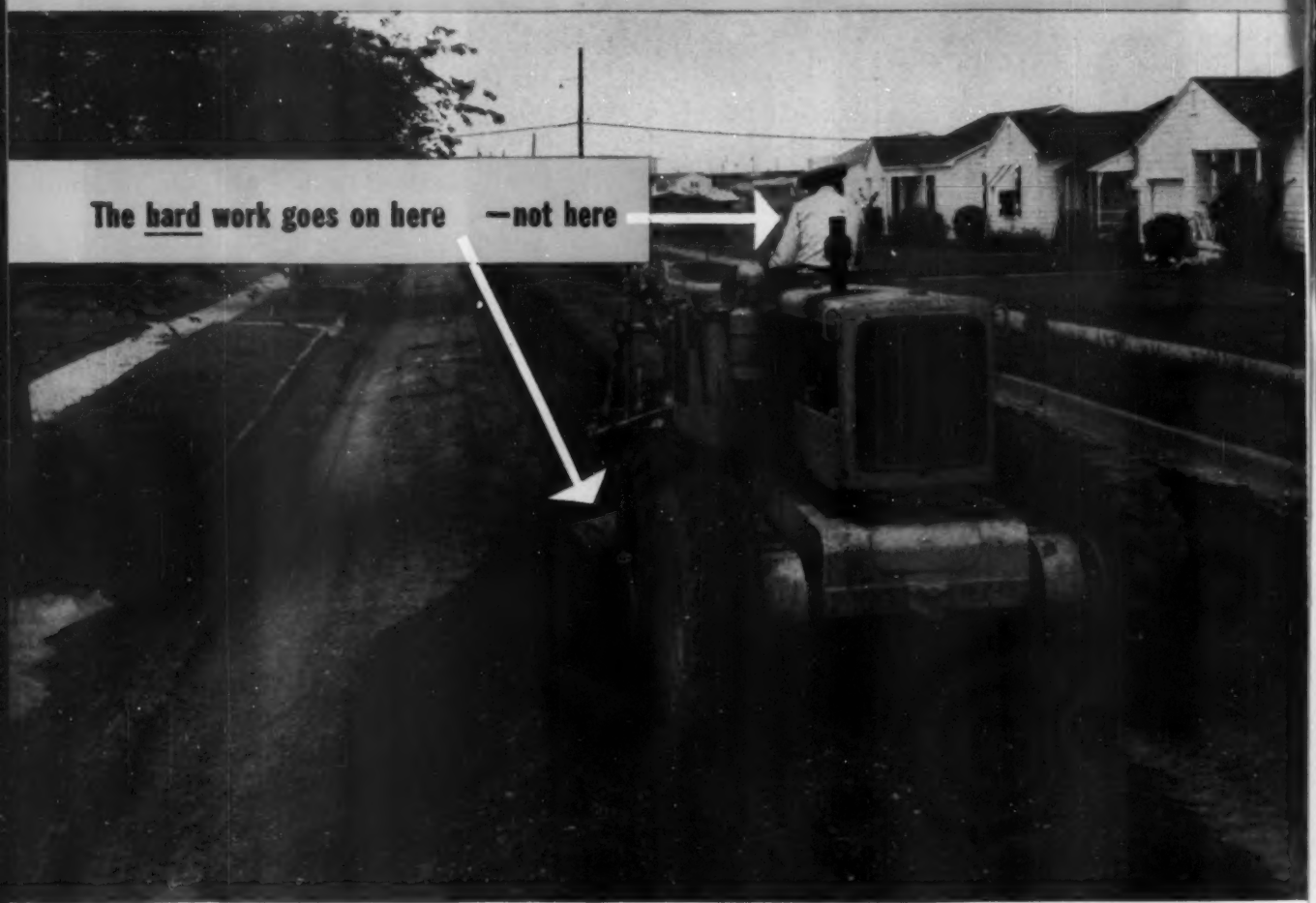


New unit is an actual replacement, not an auxiliary engine.

Gains in Efficiency

Town Superintendent Clair Mehlenbacher reports the installation not only put new life in the much-used machine but also gave it a slight increase in available horsepower. Little time was required for the operation.

How to build a block a day—sitting down!



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In Grand Prairie, Texas, they do it a block a day.

And you can work Cat Motor Graders sitting down. Just look at the operator on Grand Prairie's No. 112. Comfortable, in complete control of the job, no strain.

It's the low frame design of the No. 112, and its dashboard-mounted lift gears, that make the visibility so good, even when the operator is sitting. It's the precise mechanical controls that make blade positioning so accurate. And it's the curved side shift rack that makes a wide range of movements so easy. Scores of other Caterpillar engineering advances make these versatile yellow machines as much a bargain for your city as for Grand Prairie. Find out for yourself. Ask for an on-*your*-job demonstration, right now! Call your Caterpillar Dealer. Ask about making the hard work *easy*.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

YOUR TAX DOLLAR'S BEST BUY

Big Ripper Speeds Maintenance Work

FOR the last three years the City of Los Angeles has been ripping up its streets with a specially built tool. This consists of a hydraulic ripper mounted on the rear of a bulldozer-equipped Tournatractor. Crook Company, LeTourneau-Westinghouse distributor in Los Angeles, built the ripper.

Los Angeles' highly mobile ripper is in constant demand by maintenance crews.

One Shank Used

Although the ripper is designed to operate with five teeth, the city prefers using only one shank, not for lack of power, but because it shreds the broken pavement better with one point.

Edmund M. Butler, operator of the unit, works with any maintenance crew that has need for the big ripper. He travels to and from the job through the traffic of Los Angeles streets under a special permit enabling the Tournatractor to travel on the streets. Some days it travels as much as 100 miles, and does 3 or 4 separate jobs at different locations. In the past three years the ripper has worn out 100 teeth and six shanks.

According to operator Butler, the machine paid for itself on the first job. It is so powerful that it slices through a macadam street like a hot knife through butter. With speed, power and mobility combined in one unit, it serves as an excellent street maintenance tool.

More Expressways for the Chicago Area

THE 1958 highway program for Cook County, Ill., recently submitted to the Board of County Commissioners, carries a price tag of $115,960,200. Construction and right-of-way acquisitions on eight expressway routes will take almost $107,000,000, and about $7½ million will go toward 58 projects of improvement and right-of-way acquisitions on non-expressway streets and roads in Chicago and throughout the suburban area. The program also includes $1.5 million for study, land acquisition and construction of the "4-mile grid" expressway system.

This year will see considerable activity centered on three uncompleted sections of Congress Street under construction by the county and on the Northwest expressway section connecting with O'Hare Airport. Plans call for all of the Northwest expressway between O'Hare Airport and the interchange with Edens expressway in the vicinity of Montrose and Cicero Avenues to be under contract in 1958. This program alone includes the construction of 26 grade separation structures and two bridges over the Des Plaines River plus eight structures in the complicated interchange with the Illinois toll road system.

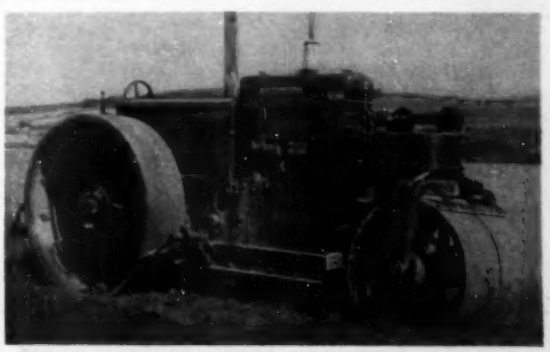
Other projects included in the program involve over 20 grade separations, several interchanges, drainage pumping stations, demolition, and roadway lighting.

Revitalized Roller Still Does the Job

THE Town of Cohocton, N. Y., gave new life to its ailing street roller by installing an International Model V-164, four-cyclinder gasoline engine. Mounting the new engine on the 10-ton Buffalo-Springfield roller required no major changes. It was fitted with a double-chain sprocket on the flywheel stub shaft and drives a double-chain sprocket on a roller transmission-input shaft. The changeover also required an extension of the governor control.

Gains in Efficiency

Town Superintendent Clair Mehlenbacher reports the installation not only put new life in the much-used machine but also gave it a slight increase in available horsepower. Little time was required for the operation.



New unit is an actual replacement, not an auxiliary engine.

Now! The greatest concentration built into a truck engine!

Ford's all-new Super Duty V-8's—with displacements of 401, 477 and 534 cubic inches—are designed to handle GVW's up to 51,000 lb. and GCW's up to 75,000 lb. on America's toughest runs. And their endurance has been proved, not only in dynamometer labs and on the proving grounds, but in commercial fleets from coast to coast.

You get more miles with less downtime! These all-truck engines combine an entirely new concept of engine cooling with the latest developments in mechanical design and materials, setting new Ford standards of performance and dependability in heavy-duty truck service. Here is the "how and why" of Ford's superiority:

Exclusive three-stage cooling provides fast, uniform warm-up. Coolant flow is controlled by a second thermostat that balances the rate of warm-up and expansion of block and heads. Stress concentrations and the possibility of head warpage are virtually eliminated.

High-capacity water pump, the heart of Ford's cooling system, circulates over 200 gallons per minute. High volume coolant flow, with little or no aeration, supplies vital scrubbing action at valve guides and seats. Another advantage of this unique pump—its high capacity (50% more than competitive types) is obtained with no increase in required horsepower.

Water-jacketed fuel-air intake passages, in manifold *and* heads, maintain correct and uniform fuel temperatures from carburetor to combustion chambers. This results in proper vaporization and equal distribution of fuel-air mixture to each cylinder for improved economy and maximum engine smoothness.

New "In Block" combustion chambers transfer heat concentration from heads to block for 360° chamber cooling. This transfer allows better cooling of head and valve areas, greatly increasing the life of these parts. Combustion heat absorbed by the head of the aluminum alloy piston is transferred to the long, solid piston skirt. From there it is readily dissipated through the cylinder wall into the coolant which surrounds cylinder throughout the entire length of piston travel. The result is long life pistons and rings.

Internally mounted oil cooler keeps oil at lower temperatures for better lubrication. Reduced oil temperatures maintain greater oil film strength and reduce oil carbonization. Also, cooler oil means cooler running, longer lasting rod, main and camshaft bearings.

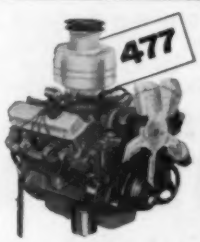
Fully machined combustion chambers mean close tolerances for accurate regulation of compression pressures. In Ford's new Super Duty V-8's, all surfaces of the combustion chamber (cylinder wall, bottom of head and top of piston) are precision-machined. Piston tops have a tapered step to maximize turbulence for improved combustion with regular grade gasoline. The smooth, straight surfaces of this wedge-shaped combustion chamber eliminate deposit-forming pockets to minimize harmful preignition.

Turbulence Top pistons have four rings and three of them, including the oil ring, are chrome-faced for long life. The top ring groove has a bonded cast-iron insert to further reduce wear. Piston tops are extra thick to withstand high compression pressures. Each piston contains thermal struts that control expansion for a precise fit, hot or cold.

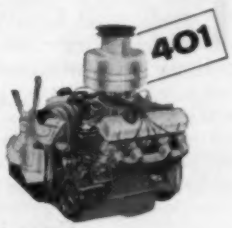
Hard-faced intake *and* exhaust valves with wear-resistant valve seat inserts are a Ford exclusive. Valves are made of heat-resistant materials and heads are dish-shaped to allow them to seat readily. To minimize the possibility of sticking, valve stems are electrolized, a surface treatment previously restricted to aircraft engines. Positive rotators provide a self-cleaning action for

NOW!
Three all-new all-truck V-8's

277-hp Short Stroke V-8 . . .
Torque: 490 lbs-ft @ 1800-2300 rpm



260-hp Short Stroke V-8 . . .
Torque: 430 lbs-ft @ 1800-2300 rpm



226-hp Short Stroke V-8 . . .
Torque: 350 lbs-ft @ 1800-2300 rpm

American Business buys more Ford Trucks than any other make!

# of endurance features ever

They're all standard in Ford's new Super Duty V-8's

more perfect seating and sealing. Any valve material requires good cooling for long life. Ford's new Super Duty engine design makes more coolant available for lower valve temperatures. This coolant flowing past Ford's integral valve guides quickly carries away valve heat. In addition, exhaust valves are sodium-filled for rapid transfer of heat from head to stem. The sodium is added by a unique process that eliminates welding, thereby strengthening the valves.

Hot testing of every Super Duty V-8 is a typical example of Ford's quality control. Each engine is run for 20 minutes to check smoothness, timing, valve lash adjustment, oil pressure, and push rod rotation.

The engine is then partially disassembled. Parts are inspected for condition and alignment. Special attention is given to bearings and other items that might cause premature failure. The engine is then reassembled and run for about 10 minutes to check timing, noise level, acceleration, smoothness and coolant, oil or compression leaks. Only Ford uses such a detailed inspection of every engine. This is done to provide you with a more dependable truck.

New submerged electric fuel pump virtually eliminates vapor lock and maintenance problems. Mounted in the bottom of the tank, it pushes solid fuel under pressure from tank to carburetor. Its electric motor is sealed in a stainless steel capsule, and operates the pump by magnetic drive.

Every engine part is a truck engine part designed and built exclusively for Ford's all-new Extra Heavy Duty trucks. The same attention to detail required for durability in the major components has been carried over to all other parts as well. Listed below are but a few typical examples:

Stainless steel gaskets at heads and exhaust manifolds practically eliminate tie-ups due to blown gaskets.

No external oil lines to break. Oil filter and air compressor are mounted directly to block.

Valve stem seals are of same material developed for use in government missile program.

Rotor-type oil pump maintains high output, virtually unaffected by normal wear from extended operation.

Dual exhaust system provides far easier breathing and higher volumetric efficiency.

Alternator system replaces generator for longer electrical life.

Biggest Ford trucks ever built! Ten new series—Tilt Cabs, Conventionals, Tandems—up to 51,000-lb. GVW, 75,000-lb. GCW. For complete information see your local Authorized Ford Dealer.

Big truck built... big truck powered... at Ford's low prices!

FORD TRUCKS COST LESS

LESS TO OWN . . . LESS TO RUN . . . LAST LONGER, TOO!

COSTS LESS TO BUY

A single, molded rubber gasket is the only accessory required. There are no bolts, no nuts, no followers, no couplings, no extras.

COSTS LESS TO INSTALL

Assembly is easy and rapid. Rate of installation usually is limited only by the speed of excavating the trench.

JOINT IS TIGHT

Bell-Tite forms a pressure-tight joint instantly. Restrained joint bursting tests prove joint stronger than the pipe itself.

This is it... CLOW Bell-Tite® Joint Cast Iron Pipe

ALL-WEATHER JOINT

You keep your schedules with Bell-Tite Joint cast iron pipe. It can be easily laid in a wet trench or even under water.

UNDERWRITERS' LISTED

All diameters through 24" listed and inspected by Underwriters' Laboratories, Inc. for working pressures to 350 psi.

AMPLE DEFLECTION

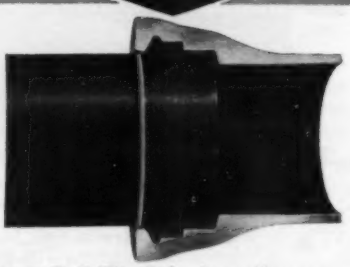
Bell-Tite Joint cast iron pipe is so designed that it will easily accommodate casual curves and normal grades.

MEETS ALL REQUIREMENTS

CLOW Bell-Tite Joint pipe is strong, tough, uniform and durable cast iron pipe for long-life underground service.

ANY SIZE OR THICKNESS

Available in any specified thickness or weight class in accordance with ASA, AWWA or Federal specifications. 3" to 24".



CLOW Bell-Tite Joint is easily assembled—Just wipe clean, lubricate and push spigot into the bell. When painted yellow stripe is no longer visible, joint is bottle tight.

ENTHUSIASTIC RECEPTION

Contractors and Municipalities—men who know pipe—have installed well over 1,000,000 feet of CLOW Bell-Tite pipe.

CLOW 1878

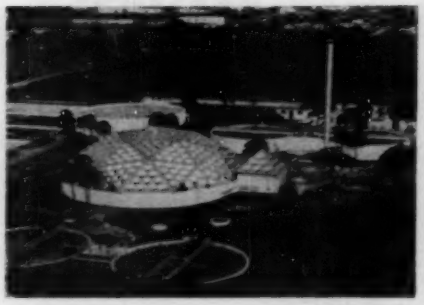
JAMES B. CLOW & SONS, Inc.

201-299 North Talman Avenue, Chicago 80, Illinois

Subsidiaries:
Eddy Valve Company, Waterford, New York
Iowa Valve Company, Oskaloosa, Iowa

Left:
Workmen are assembling Shell Truss space frames at the job site.

Right:
Dome and pyramid covers are of stainless steel and aluminum. Plastic liner protects cover from corrosive fumes.



Trickling Filter Enclosed with Fabricated Cover

SARASOTA, Fla. recently covered a 110-foot diameter filter with a fabricated structure of stainless steel and aluminum. It utilizes a new engineering technique called the Shell Truss system. Jeffrey Lindsay and Associates of Montreal and Los Angeles, low bidder for the job, maintain patent rights on the Shell Truss technique.

The cover consists of a series of panels made up from a space frame kit. The frames bolt to special expansion brackets, which are in turn bolted to the wall. Any size cover can be made up with the space frame kit, and extra reinforcement of the concrete tank wall is not necessary.

Personnel hatches provide access to the filter, and larger openings can be made by removing panels from anywhere in the structure. These are triangular in shape, about 28 feet to the side, cover an area of 285 square feet and weigh 300 pounds. The dome over the circular tank is 112 feet in diameter, 27 feet high, and covers 10,000 square feet of area with 12,000 square feet of space frame. It has a volume of 33,000 cubic feet. The pyramid over the adjacent square tank is 24 feet square and 12 feet high. It covers 500 square feet with 800 square feet of cover area and has a volume of 2,000 cubic feet.

Various plastic liners can be installed to isolate corrosive fumes. The Sarasota installation, designed to eliminate the escape of H_2S, is lined with a patented Type 1 "Osmoticloth" consisting of silicone-treated dacron. This material is highly resistant to both H_2S and H_2SO_4, and because of its porosity, largely eliminates condensation.

A blower draws fumes down through the filter bed where hydrogen sulfide and other offensive compounds are oxidized. Discharging the air through a 100-foot high stack disburses the residual humus-odor. Air intake is through the porous liner.

Smith and Gillespie of Jacksonville, Fla. served as consultants for the city. Special consultant was Dr. Richard Pomeroy of Pasadena, Calif.

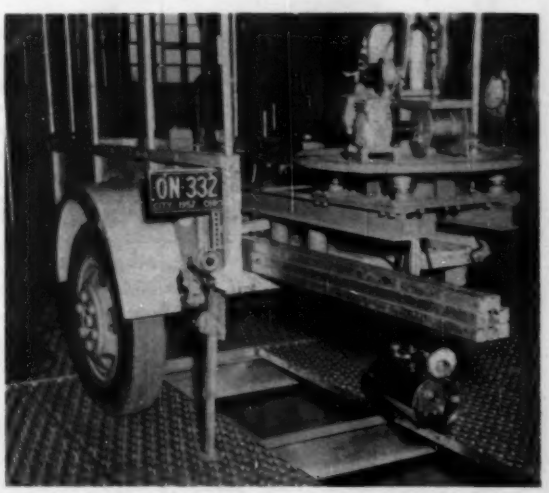
Total cost for both covers in place was $39,500, or $3.08 per square foot of cover complete.

Closed Circuit TV Inspects Cincinnati Sewers

ART Carney may have put sewers on television and made them funny, but Cincinnati's Art Caster, principal sewage disposal engineer, is putting his city's sewers on television as serious business.

The television used in this case is a portable closed circuit that gives a constant, labor-saving inspection of key locations, ordinarily hard to visit. In certain areas he'll use a television camera which will look at gates in regulating chambers. This is a fixed installation in addition to a mobile unit and will provide an easy way to inspect new sewer construction. Mr. Caster is considering the idea of developing a "scooter" of some type to carry the camera in existing sewers smaller than 36 inches. He also plans a fixed installation that will provide a constant, visual inspection of the Link-Belt screens in the pump room.

The camera and circuit were developed by the Diamond Industrial Television Company, Lancaster, Ohio. It is mounted on a trailer carrying a Fairbanks-Morse generator. The trailer is equipped with a hoist and a remote-controlled focus attachment and directing arrangement.



Closed circuit TV, mounted on trailer with portable generating plant, inspects regulating chambers and deep manholes.

Typical street in the city-owned trailer park, which is Sarasota's most solid business venture.

Sarasota's Municipal Trailer Park

. . . finances city swimming pool, golf course, provides city-wide business stimulus

ON the heels of some local grumblings that Sarasota ought to divorce itself from municipal operation of facilities like its golf course, a public beachfront casino, mobile home park and other city-owned facilities, an investigation of the city-owned trailer park surprised the city's solons and citizenry.

Sarasota's Mobile Home Park, housing over 900 trailers, with rentals ranging from $16 to $35 monthly, is the oldest existing such park in the country, the second biggest in the United States, and the nation's largest city-owned trailer court.

It has a population of over 3,000, among whom are folks living on meagre retirement pensions, and nine millionaires.

The park residents spend a proven $1,808,000 each year locally, in addition to $176,000 spent within the park itself for rent, utilities, etc. Trailerites bought mobile homes locally to the tune of $1,780,000; they patronized local car dealers, spending $465,000 for new cars; they purchased $105,000 worth of gasoline and car maintenance; they spent $295,808 for entertainment, and

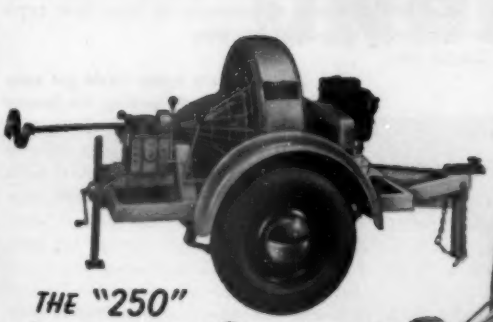
(Continued on page 241)

Survey Results

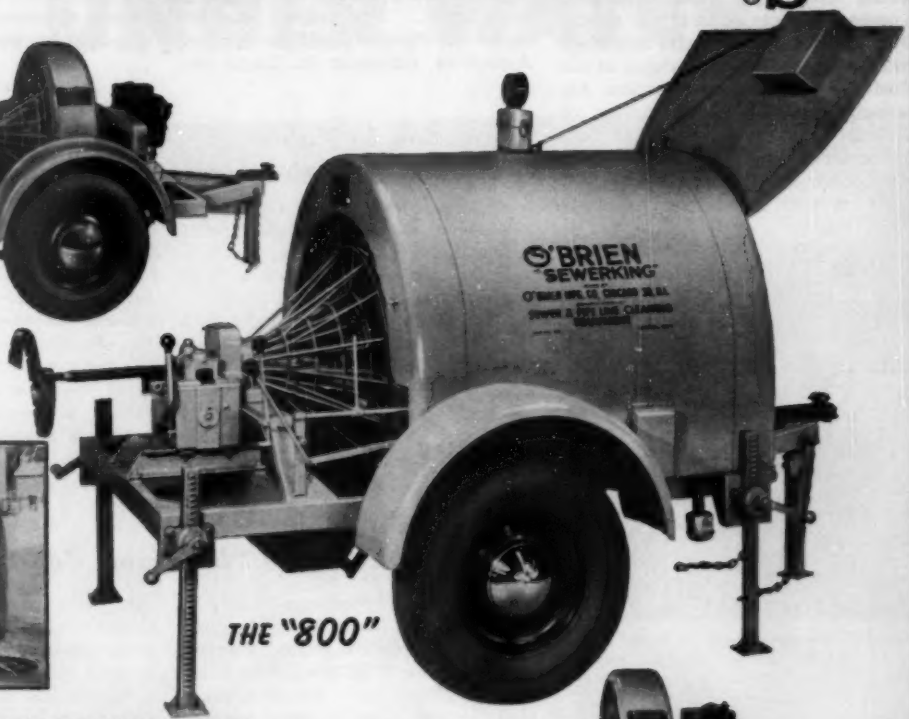
	Average	Annual Total
What is your weekly expenditure (estimated) per person for food?	$ 10.23	$ 749,269.75
What are your total assets, here and elsewhere?	$71,823.00	$64,640,700.00
Have you purchased a trailer locally, and if so, at what cost?	$ 3,574.00	$ 1,780,000.00
	500 answered yes	
Have you purchased a car locally, and if so, at what cost?	$ 2,832.88	$ 465,834.00
What do you spend for gasoline and car maintenance per week?	$ 6.27	$ 105,336.00
What do you spend for entertainment per week?	$ 4.04	$ 295,808.80
What do you spend for all expenses not covered above per week? This includes drugs, clothes, gifts, etc.	$ 8.97	$ 646,981.43
What do you spend for heating fuel per week?	$ .84	$ 10,607.62
How many weeks per year do you live in a mobile home in this park?	28	
Do you prefer a mobile home to a regular home?	793 answered yes	
What is the average age of the occupants of your trailer?	65.7	
Do you live in a trailer elsewhere?	117 answered yes	

From the above figures, the residents of the Sarasota Mobile Home Park spend $1,808,003.60 each year in addition to the $176,000 spent within the park itself for rent, utilities, etc.

NOW 3 O'Brien sewerkings®



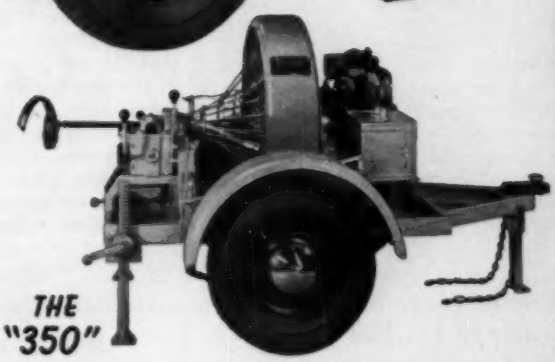
THE "250"



THE "800"

CLEAN SEWERS MANHOLE TO MANHOLE ALL BY POWER

Now there is a choice of O'BRIEN SEWERKINGS to do the job you require. Every model operates automatically with the exclusive O-B power transmission—the secret of handling long lengths of cable with power drive. Power does all the work—projecting the cable into the sewer—revolving it for efficient cleaning—returning the cable to the storage drum. All the operator does is handle the control levers—with safety, and less fatigue. Let us refer you to cities in your vicinity who have reduced their sewer cleaning costs 50% to 75% with an O'BRIEN SEWERKING.



THE "350"

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CITY_____ STATE_____

STREET_____

SIGNED BY_____

TITLE_____ DEPT._____

AC-458

Our Municipal Notebook

David L. Wright Named To Government Post

DAVID L. WRIGHT, sales administrator of the Badger Meter Manufacturing Company, Milwaukee, Wis. has been appointed Advisor to the Director of the Water and Sewerage Industry and Utilities Division of the Business and Defense Services Administration, U. S. Department of Commerce, according to an announcement from H. B. McCoy, administrator of BDSA.

Mr. Wright is on loan from his company under a rotation system in which key business executives serve the Government without compensation for six months or longer. He succeeds Charles K. Bassett, vice president of the Buffalo Meter Company, Buffalo, N. Y., who is returning to his industrial post.

David L. Wright (right) is being sworn in by H. B. McCoy, administrator of BDSA.

Kansas City, Kans. Gateway Project

KANSAS CITY, Kans. is busy with the Gateway Project, which calls for the acquiring and clearing of some 100 acres in the heart of the city. This area, now badly deteriorated, will be kept from lapsing back into this condition by new highway connections to the newer part of town and across the river to Kansas City, Mo.

The main features of the Gateway Project are a 200-family apartment development with limited access streets and off-street parking; a commercial center with a large department store, parking garages, and a high-rise office building; a 125 unit motel with swimming pool, and a number of new industrial sites.

The cost of the project is estimated at $7 million, which will be financed under provisions of the urban renewal program of the Housing and Home Finance Agency and by a city bond issue. The project was designed by Harland Bartholomew and Associates, planners, St. Louis, Mo.

Innovation in Public Housing at Philadelphia

A COMPLETE departure from the low-income apartment-house type of public housing project received federal sanction at Philadelphia. The city will have the nation's first low-income housing program using scattered, private homes. Under this new plan families eligible for public housing will live in older private dwellings purchased and renovated by the city.

U. S. Public Housing Administrator Charles E. Slusser gave city officials the go-ahead with the outline plan. Mayor Richardson Dilworth and William L. Rafsky, city redevelopment coordinator, estimated final plans will be ready in two months.

Philadelphia officials cited the following advantages of this new type of public housing:

1. Use of private homes would get away from the practice of herding low-income families into institutionalized projects.
2. Costs would be lower than building multistory housing projects. Purchase price of older dwellings would be lower and renovation costs could be kept down. Many homes could be bought through tax sales.
3. The plan would eliminate the problems of finding large sites for housing projects. Neighborhood opposition to erection of project units has also slowed progress. On the other hand, a survey has shown there are many one-family homes available in some areas.
4. Each dwelling would house only one family. This would make supervision easier and reduce maintenance costs.

400 Municipalities Plan Major Construction Work

MORE THAN 400 communities, counties, and urban areas throughout the country are receiving financial assistance from the federal Community Facilities Administration, Housing and Home Finance Agency, in the preparation of plans for new water and sewer systems, educational facilities and other needed public works.

Complete plans will provide construction estimated to cost approximately $700 million. This should provide at least 50,000 man-years of direct employment as projects go into construction in accordance with local schedules, according to Community Facilities Administration.

Approximately 46% are for sewers and water facilities; 31% are for schools and educational facilities; and the remaining 23% involve planning for public buildings, roads, streets and miscellaneous public facilities.

Planning funds made available under this program are interest-free, but repayable when construction is undertaken.

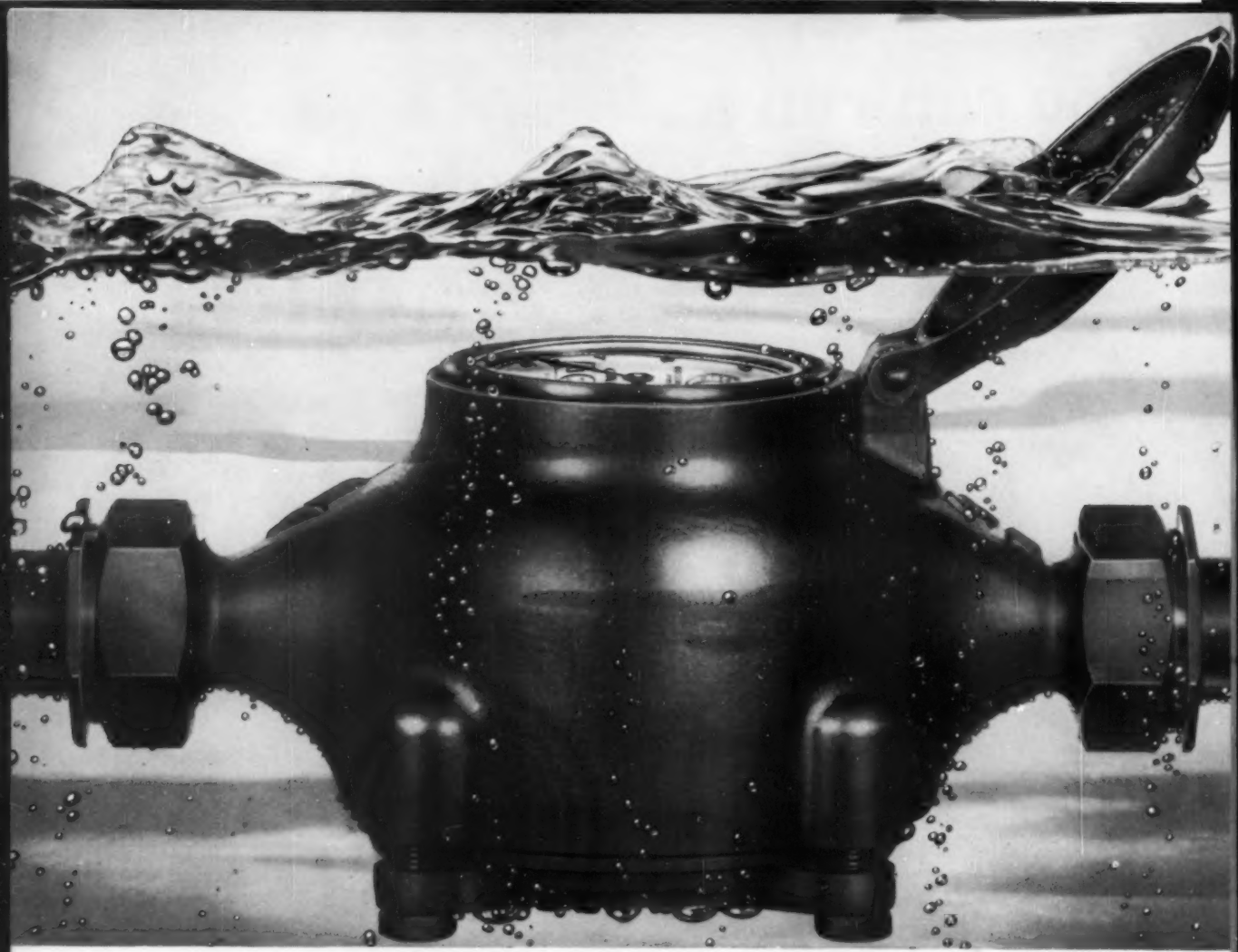
REPRESENTATIVE MUNICIPAL BOND ISSUES— January 24, 1958 to February 26, 1958

Date of Issue			Purpose	Average Maturity (Years)	Net Interest Cost or Basis (Per Cent)
1/24/58	Montmorency County, Mich.	$125,000	Roads	5½	3.99
2/ 6/58	Provincetown, Mass.	140,000	Seawall	5½	2.58 (basis)
2/ 6/58	Thompson, N. Y.	104,000	Holiday Mountain Park & Recreation—1958	5½	3.17 (basis)
2/11/58	Evansville, Ind.	150,000	Municipal Airport.	5½	2.4281
2/11/58	Hope Hills, N. C.	11,000	Water	6	4.2333
2/11/58	Los Angeles, Calif. Metropolitan Water District of Southern California	18,000,000	Waterworks Securities	6½	2.38760
2/19/58	Montreal, Que., Transportation Commission	13,500,000	Sinking Fund Debentures	20	4.875
22/20/58	Upper Arlington, Ohio	551,555	Special Assessment Improvement	5¾	2.45
2/25/58	New York, N. Y.	40,500,000	School Construction	8	2.845
		4,000,000	Various Municipal Purposes	3	
2/26/58	Richmond, Ind. Sanitary District	1,656,000	Sewer Construction	12¾	3.006 (basis)

Compiled from THE BOND BUYER

You can run a Rockwell Sealed Register Meter

UNDER WATER...



You Can Run This Sealed Register Meter

UNDER WATER!

You who have had meters stopped and registers ruined in flooded basements or curb boxes know what it means in trouble and expense. The Rockwell Sealed Register water meter forever ends that problem. Water, muck and grime just can't get into the hermetically sealed register.

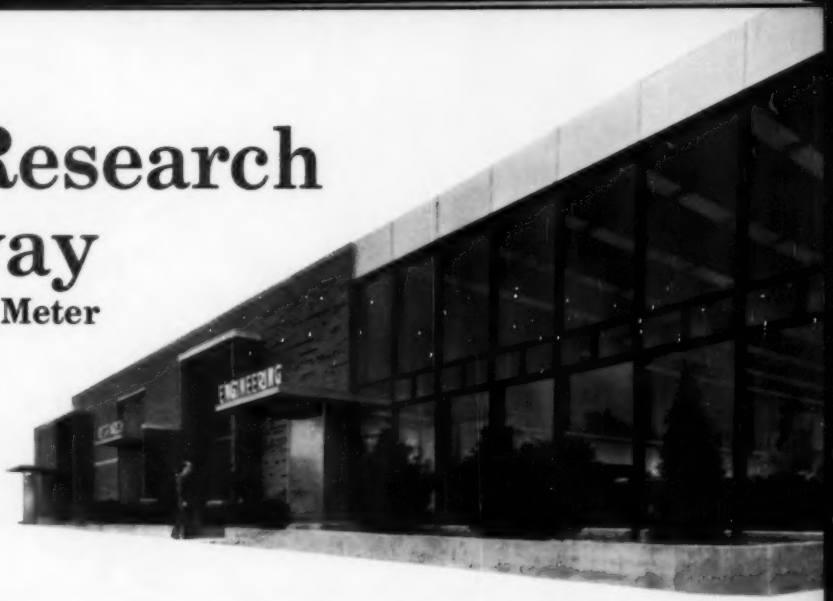
Too, you can always read this new Rockwell meter. Condensation, which so frequently mists and obscures the dial face of conventional meters, can't occur with this sealed construction.

In the matter of maintenance, with Rockwell Sealed Register meters you'll never again need to service leaky or bound stuffing boxes—*for there are none!* A powerful magnetic coupling between the measuring chamber and the sealed register positively transmits motion without mechanical linkage or seal.

All this, plus only two moving parts operating in water, make the Rockwell Sealed Register meter the least vulnerable to wear or attack—the smoothest running and the most accurate. Write for bulletin. Rockwell Manufacturing Company, Pittsburgh 8, Pa.

Rockwell Research leads the way

with the Sealed Register Meter



The remarkable all-new Sealed Register meter resulted from the combined talents of over 200 skilled Rockwell engineers and technicians. Their work was conducted in the most modern and advanced facilities in the meter industry.

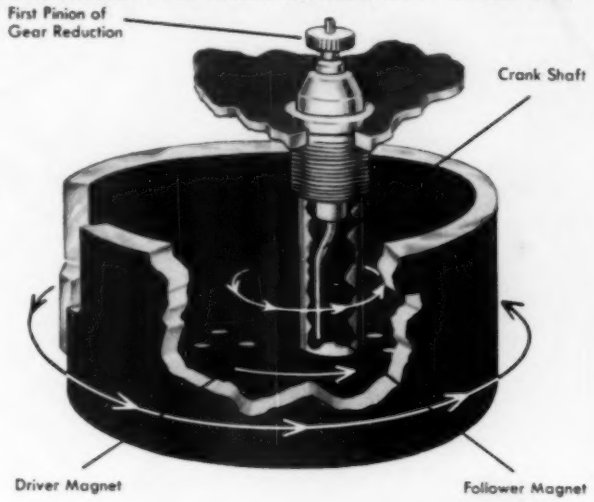
Since the introduction of this meter, one short year ago, water meter history has been re-written. *Your* acceptance of the principles involved and *your* orders from all over the country have demonstrated that a better meter was needed and welcomed.

Just in case you have forgotten, the two important engineering advances which made the Rockwell Sealed Register meter possible are described below.

HERMETICALLY SEALED REGISTER

This sealed register assembly contains all the gearing both for register operation and for intermediate reduction. Gears and pinions are of the free-running instrument type. They offer only token resistance to the measuring element and so improve the accuracy and response of the meter, especially on low flows. This hermetically sealed register construction is located high and dry above the flowing stream. It forever puts an end to condensation problems. There can be no fogging or clouding of the heat treated register glass. With all gearing sealed against corrosion and abrasion, the life expectancy of this unit is almost limitless. It is fully guaranteed for five years.

POWERFUL MAGNETIC DRIVE



In the Rockwell Sealed Register meter a powerful, permanent magnetic coupling is used to transmit motion of the measuring element directly to the register without a mechanical connection. The driver magnet is within the center shaft of the measuring piston. The follower is encased in a watertight housing which extends into the center of the measuring chamber. As the piston oscillates, the driver magnet revolves around the follower. The follower pushes a crank shaped shaft so that the crank transmits every movement of the driver. This crank then drives the first pinion of the gear reduction in the sealed register case.

The Alnico alloy used in this magnetic coupling is a complex alloy, especially developed for this service. Laboratory control assures its consistency for a lifetime of efficient operation.

Readings stay accurate, revenue high because a *magnetic shield* positively eliminates "cheating" the magnetic drive.

SEALED REGISTER METERS

another fine product by

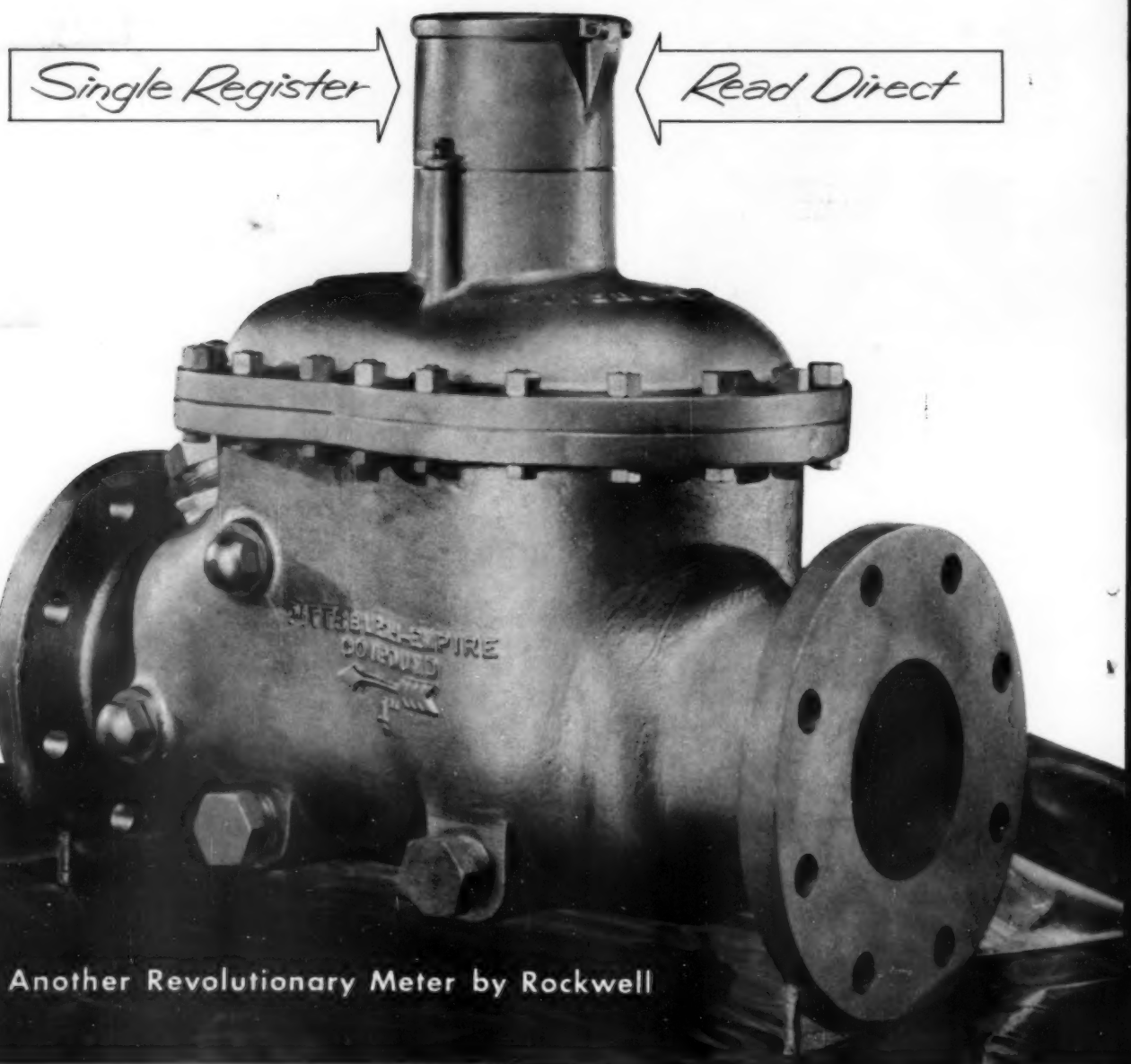
ROCKWELL

BLIGHTED

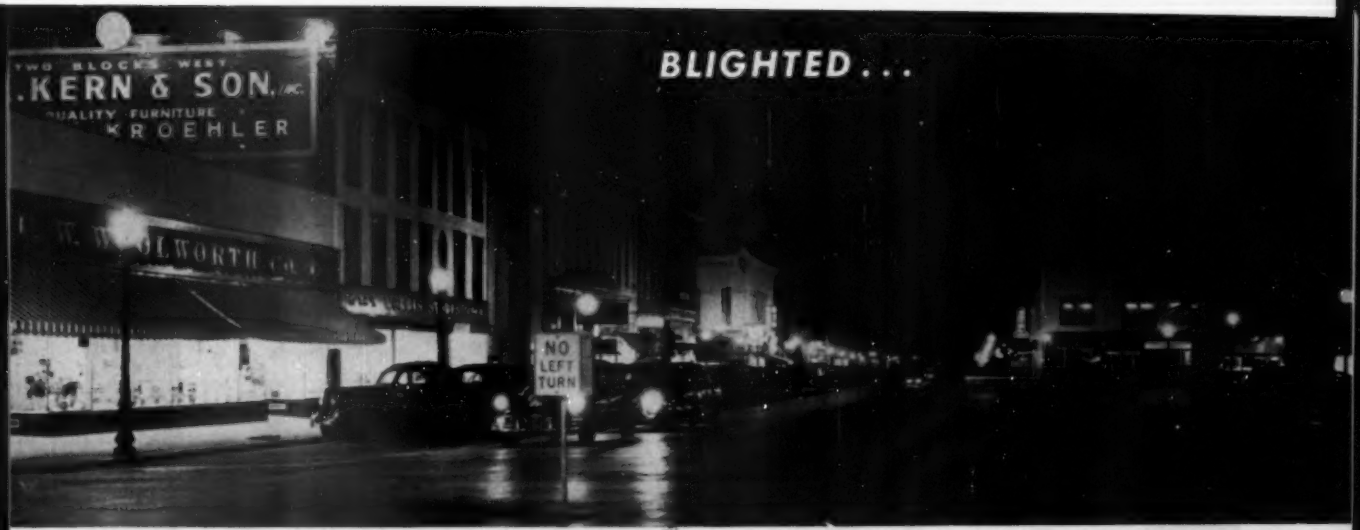
Rockwell *Single Register* Compound Meters

FASTER READING . . . FEWER ERRORS . . . NO CALCULATIONS

No other compound meter offers as many *conveniences and advantages* to the operating man. Consider the single register which speeds meter reading and prevents errors. Compare the light weight of these meters . . . the handling ease . . . against conventional compounds. Try and match the full range accuracy, the low pressure absorption, the smooth, quiet operation. And don't overlook maintenance ease. This Rockwell compound can be quickly dismantled or assembled while in the line. Bulletin W-803 gives complete details. Write for it today. Rockwell Manufacturing Company, Pittsburgh 8, Pa.



Another Revolutionary Meter by Rockwell



GOOD STREET LIGHTING CAN TRANSFORM a gloomy night shopping area into a safe, busy, cheerful symbol of community progress and prosperity.

Think urban renewal is just for big cities?

No, modernization of the "central city" section is not a problem for only the big metropolises. It's a problem that confronts *every* community which wants to keep its downtown section healthy and thriving.

A first step in checking "decay" in your business district is to determine if your public lighting system is up-to-date. For dark, uninviting streets reduce the hours of business, discourage visitors, and spawn accidents, delinquency, and crime.

Trade follows the light. Brightly lighted shopping streets attract out-of-town shoppers, as well as helping hold local customers. Real estate values stabilize, even rise, as the business pace quickens. Community pride and spirit soar as the shadows lift, setting the stage for further civic improvements. Good street lighting is contagious!

See your downtown section in a new light! No other major public works program you could sponsor can be achieved at such low cost, or in such a short time. Begin planning your relighting program—right away—with the help of your electric utility. General Electric Co., Schenectady, N. Y. 435-16

Borrow a print of the movie "Out of Darkness" from your nearest G-E Apparatus Sales Office.

GENERAL ELECTRIC

Low cost operation

Whether it be shining shoes, or a multi-million dollar industry, operational costs can spell the difference between success and failure. That is why so many government agencies, municipalities, private water companies, and industries have turned to LOCK JOINT CONCRETE PRESSURE PIPE.

The dense walls of Lock Joint Concrete Pressure Pipe resist electrolysis and soil corrosion. They also protect steel reinforcing of such conservative stress design that danger of bursting is virtually negligible. Result: replacement or even repair is a rarity, and danger of sudden failure which often entails extensive damage is held to a minimum.

Smooth concrete inner surfaces which cannot tuberculate make the pipe's initial high carrying capacity permanent. Result: low pumping costs and full capacity in the future when even greater demands may be made on the line.

Long life, permanent high carrying capacity and minimal maintenance represent highest quality service at lowest operational cost. This measure of a successful water works system can be yours with LOCK JOINT CONCRETE PRESSURE PIPE.

LOCK JOINT PIPE CO.

East Orange, New Jersey

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Mo. • Perryman, Md.

Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

Council-Manager Government in 1957

IN 1957, the council-manager form of government expanded to 104 more communities. Of these, 50 adopted the plan under home rule charter, optional state law or special act of the state legislature; 29 adopted the plan by ordinance; 21 adopted it in prior years, going into effect in 1957; and 4 cities were reinstated. The cities, towns and counties ranged in size from ***Essex Town, Vt.,*** with a population of 200, to ***Dade County, Fla.*** with a population of over 700,000. In addition, 17 cities voted to retain this form of government and eight to abandon it.

In the field of legislation, Arkansas, Kansas, Nevada, Pennsylvania, and Tennessee passed laws granting permission for various cities, towns and counties to adopt the council-manager form of government. These laws also prohibited abandonment of the plan until after a certain time.

As of January 1, 1958, 1,550 cities, towns and counties have adopted this form of government. California leads with 179 communities using the council-manager plan, followed by Maine with 131. The population of these 1,550 places totals over 31 million.

This information is drawn from a pamphlet issued by the International City Managers' Association, 1313 East 60th Street, Chicago 37, Ill. It is entitled *Recent Council-Manager Developments and Directory of Council-Manager Cities.* Price, $1.

A Small City Builds a Civic Center

ROCKVILLE, Md. (population 20,000) is building a new civic center to serve the needs and interests of its citizens. The new center when completed will serve both recreational and cultural functions.

The present center is situated in a mansion located on 28 acres of park land. It services at the present time some 3,000 people a month. When the new center is completed, the mansion will remain the central feature. In addition there will be an auditorium, amphitheatre, pool, and other recreational facilities.

The ten-sided auditorium will seat 900 persons and cost an estimated $125,000. It will be located off the mall near the southeast corner of the park.

The amphitheatre, in the northwest corner, will make use of the hillside for the seats. At its foot will be a newly deepened pond. Across the pond will be a band shell for bands and concert groups.

Parking facilities in the new civic center are planned to harmonize to fit in with the landscape.

Montana Water and Sewage Men Sponsor Engineering Scholarship

THE water and sewage works officials of Montana are taking direct action to help overcome shortages of trained men in their field. This consists of the Dean William M. Cobleigh Memorial Scholarship. Dean Cobleigh headed the Montana State College school of engineering from 1929 until his death in 1951.

The joint committee responsible for the scholarship consists of John Hazen, Butte Water Company; John Morrison, Morrison Maierle, Inc.; Dr. E. R. Dodge, Montana State College; and Herbert B. Foote, chairman.

Peoria's Personnel Policies Get Industry Approval

PEORIA, Ill. city personnel system passed muster by personnel directors of five of the city's businesses recently, the International City Managers' Association reports.

The five men from industry concluded that the city's personnel practices generally met modern standards, protecting the interests both of the city and municipal employees.

After studying the city's recruitment, fringe benefits, training, safety, classification, labor relations, and salary programs, the committee offered some suggestions for improvement: tuition aid be provided employees studying to improve work skills; more attention be given to in-service refresher courses; and a survey of the salaries paid by employers in the area be made annually.

Two States Aid Small City Planning

THE Kentucky Department of Economic Development will aid in the creation of comprehensive plans for 19 small communities and the New York State Department of Commerce will provide similar aid to 12. The Kentucky program is being aided by a federal grant of $11,955; New York with $36,450.

The proposed planning work, designed to promote healthy urban growth, will cover such items as: the preparation of base maps, existing land use maps, zoning maps and ordinances, subdivision regulations, major street plans, a capital improvements program, a land use plan, a community facilities plan and neighborhood analyses, and parking and annexation studies.

The federal grants were approved under the urban planning assistance program authorized by the Housing Act of 1954 to provide grants to official state planning agencies for use in giving planning aid to communities of less than 25,000.

Municipal TV Distribution Brings in Five Channels

THE little city of Jackson, Minn., more than 100 miles from any television station, has taken action that provides its people with television reception that should be the envy of many large cities, according to the League of Minnesota Municipalities.

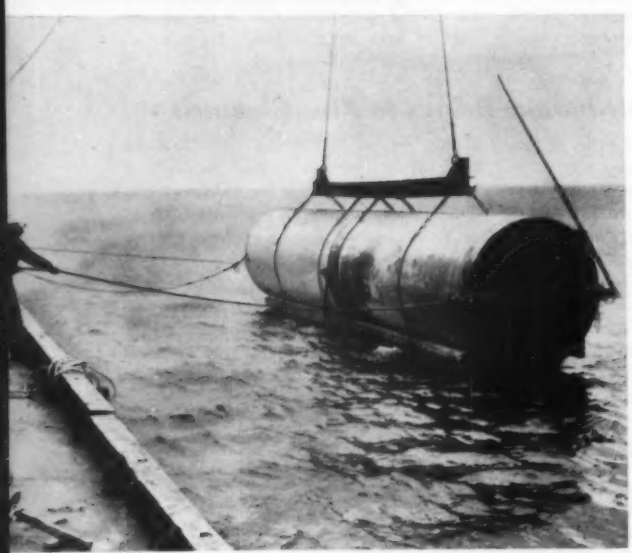
Investigation by the city council showed that well over 300 families would support a community television tower and distribution system. The municipality operates its own electrical distribution system, and thus has poles available for distribution wiring.

Consequently, the city council arranged to erect a receiving tower 300 feet high on a nearby hill, and provide the distribution system. The city makes a charge of $100 for a single outlet, involving the installation of a coaxial cable through a transformer to the television set. This is followed by a monthly charge of $2.50, placed on the regular utility bill.

General contract was awarded to Community Antenna Systems Construction Co. of Mankato, Minn. Tower was furnished by Aerial Tower Manufacturing Co., Inc. of Oklahoma City and erected by Liberty Tower Erection Co. of the same city. Tower and regulating equipment was furnished by Spencer-Kennedy Laboratories, Inc., located in Boston, Mass.

The city now has 520 service drops and it is expected that there will be 600 in use this spring.

Our Municipal Notebook



2½ Miles of Pipe For The Bottom of Lake Erie

Each piece of pipe you see above stands 24 feet high and weighs 36 tons. We made 535 of them at our Cleveland plant for the City of Cleveland's new raw water intake. The 96-inch ID concrete subaqueous pipe with rubber and steel joints was installed by Merritt-Chapman & Scott and will have a 150 mgd capacity. For information on concrete pressure pipe from 16-inch on up, write Price Brothers headquarters plant, Dayton, Ohio or Hattiesburg, Mississippi.

Price Brothers

Philadelphia Union Agreement Is Nation's First

PHILADELPHIA has recognized District Council 33, American Federation of state, county, and municipal employees (AFL-CIO), as the sole bargaining agent for its more than 18,000 city employees.

The new agreement, announced jointly by Mayor Richardson Dilworth and William J. McEntee, president of the union, covers all civil service employees, except policemen, firemen, detectives, and certain supervisory as well as professional personnel.

The contract makes Philadelphia the first large municipality in the country to accord exclusive bargaining rights to a single union for all of its nonuniformed departments. For bargaining purposes these departments will be regarded as a single "bargaining unit."

Little City Looks For a Big Builder

CORONADO, Calif. is looking for a builder to construct a $4 million apartment-house project on city-leased land.

The site for these apartments is owned by the city. It consists of 40 acres, available for lease for a 50-year period. At present the site is occupied by 565 war-emergency units erected by the Navy, unsuitable for reconditioning.

Studies by Marshall & Stevens, city planning consultants, indicate that the builder can construct about 1,500 rented units, each containing some 600 square feet of space. This would provide an annual gross income of $2¼ million — assuming the apartments were rented at $150 a month. Marshall & Stevens estimated that the tenants would have a purchasing power in excess of $3 million a year, which would make a sizable addition to the purchasing power of the city's population.

Good Citizenship Award

MAYOR Lawrence W. Mark, Yuba City, Calif. recently was named one of 11 winners in a nationwide Good Citizenship Award Program designed to encourage local businessmen to participate actively in community affairs.

Mayor Mark and 10 other winners were picked from a group of 350 supermarket and department managers who won local Good Citizenship Awards in the first part of the two-phase program which is sponsored by the National Association of Food Chains. Approximately 10,000 questionnaires, developed specifically for the progam by Teachers' College of Columbia University, were filled out by contestants for these local awards.

Mayor Mark is the meat department manager of the Yuba City Purity Stores, Ltd., supermarket. He was elected Yuba City mayor in April 1956 for a four-year term.

Lewisport, Ky. To Build Gas System

THE Ohio River city of Lewisport, Ky. will build a natural gas system with a federal loan of $140,000 and $50,000 of its own funds, according to the Kentucky Municipal League. The loan was approved by Commissioner John C. Hazeltine of the Community Facilities Administration, contingent on the inability of Lewisport to obtain the funds from private sources on reasonable terms.

Lewisport is located in Hancock County. It is about 20 miles northeast of Owensboro and its close proximity to that industrial city is expected to result in Lewisport's population growth. Its present population is about 725.

The gas system will consist of a transmission line, distribution system, and regulating station. William Taylor is mayor of Lewisport.

Do-It-Yourself Planning Survey

THE citizens of the town of Norway, Maine (population less than 4,000), are conducting their own planning survey. Due to limited budget and shortage of funds the town decided to reduce costs by gathering inventory material itself through volunteer citizen help. It has turned to the Northeast Planning Associates of Burlington, Vt., for professional advice and assistance, but is doing all the work itself.

The town hopes to have completed by March 1959 a master plan for the development of Norway. It is proceeding in two successive one-year stages—the first of which will be completed by June 1 of this year.

Surveys and evaluations of the town's people, economy and land are being undertaken by various groups in Norway. The Junior Chamber of Commerce has conducted a house-to-house survey on population, employment and housing conditions; the Junior and Senior High Schools have been surveying the traffic and parking conditions; and the Business and Professional Women's Club has been conducting an economic survey of the commercial and industrial establishments.

By conducting these surveys and evaluations themselves, the citizens of Norway have been able to get a better insight into the needs of the town and how their Planning Board operates. They have also proved that a small town with a limited budget can, by making use of its citizens, develop its own planning program.

City Employees and Elections

COVINA, Calif. has in force a code of conduct for employees during municipal campaigns and elections.

Patterned closely after the federal Hatch Act, the code forbids the city employee to:

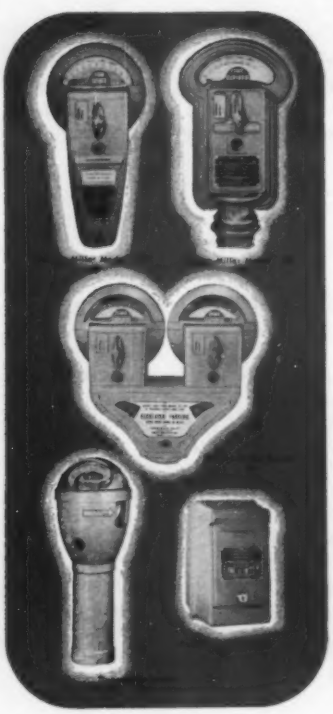
- Become an officer in political clubs or organizations.
- Actively take part in municipal or county campaigns.
- Serve on a committee of a political organization.
- Seek signatures to political petitions.
- Act as a worker at the polls or distribute political material in behalf of a candidate for municipal or county office.

However, the code seeks at the same time to guarantee the city employee his basic rights as a citizen. Thus, he may:

- Join a political organization and attend its meetings.
- Cast his vote as he so chooses.
- Seek public office.
- Seek signatures to a petition affecting his working conditions and distribute literature in connection with such petition.

One final negative note is provided in the code. While the city employee may contribute voluntarily to a political campaign, he may not be solicited by a candidate for public office.

CAPITAL PRESS SERVICE



CANADA'S CAPITAL installs DUNCANs!

As part of a well planned traffic control program, Ottawa has chosen DUNCAN-BUILT equipment to regulate parking.

More municipalities everywhere are daily being included among the many satisfied users of DUNCAN-MILLER meters.

DUNCAN-MILLER . . . the world's leading manufacturer of parking control units is predominantly preferred in cities throughout Canada, Australia, New Zealand and the United States as well as in most foreign countries.

Write today for a demonstration and free trial installation.

DUNCAN PARKING METER CORP.

835 NORTH WOOD STREET, CHICAGO 22, ILLINOIS • FACTORIES: HARRISON, ARKANSAS AND MONTREAL, P.Q., CANADA

Manufacturers of fully automatic and manual parking meters.

Old But Still Useful

This truck has participated in street cleaning activities for 33 years.

A 33-YEAR-OLD truck still plays an important part in Menomonie, Wis. street-cleaning activities. City fathers purchased the International truck in 1925 to replace a team of horses too slow for street labor, and it has served this community of 8,245 persons every year since it first entered service.

Mounting a 750-gallon water tank, it waters Menomonie's 60 miles of streets throughout the spring, summer, and fall months. The town reports no plans for retiring or replacing the veteran truck.

Dayton Buries Nonburnables

DAYTON, Ohio operates three sanitary landfills for the disposal of nonburnable material such as glass, cans, and ashes. The city utilizes 73 packer-type collection trucks of 12-, 16-, and 17-cubic yard capacity to collect this material on a biweekly basis. They cover a 31-square mile area and serve some 283,000 persons.

Two International TD-14 crawler tractors crush and cover the material at the landfill sites. One machine is equipped with a Drott 4-in-1 Skid-Shovel and the other with a standard D-2 blade. Both machines spread and level the material and the Skid-Shovel equipped unit is also used to excavate and carry cover material. It also pinch hits on the city's street maintenance program when personnel in charge of a project feel it is needed.

Nonburnable materials brought to the disposal sites each day average approximately 550 cubic yards per landfill.

A Skid-Shovel equipped unit picks up a load of cover material.

Compost Plant to Replace Dumps in Bangkok

BANGKOK, Thailand (population 1,000,000) recently engaged a British firm to construct what is reported to be the world's largest mechanized refuse composting plant. The plant, being built in a suburb of Bangkok and scheduled for operation in 1959, will produce nearly 90,000 tons of humus-forming compost a year. It is designed to receive 1,100 cubic meters (1,438.8 cu. yds.) of refuse daily.

The process involves three stages. First, all unsuitable material is removed from the refuse by magnetic and manual sorting. All salvageable material is then separated for sale. Finally, the remaining compostable material is shredded mechanically and refined in ballistic separators which remove fragments of nonferrous metal and ceramics before sewage sludge is mixed with the garbage to form the raw compost. Mechanical conveyors distribute the mixture into special chambers where fertilization and digestion take place. The process ensures that the refuse generates sufficient natural heat to kill all dangerous germs and sterilize weed seeds.

Process Tested

Some time ago the Thailand Department of Agriculture set up a pilot plant to test this projected disposal method. These tests effectively proved that compost of value as a fertilizer will be produced in the new plant.

The composting process can operate with or without sewage sludge. If sludge is not used, the garbage can be mixed with water. Present plans at Bangkok call for certain quantities of dried sludge to be brought to the site and added as required.

Don't Overlook the Connecting Link

The connecting link between the private fire alarm system or sprinkler system and City Fire Department is the Master Box.

Your fire losses are beyond the curb line. And you aren't getting 100% value from your alarm system unless your city circuits are interconnected through the Master Box to industrial plants, schools and public buildings.

Protect yourself and your citizens *all the way*. Close up the gap. Remember, you depend on industry — it's up to you to protect it.

GAMEWELL

THE GAMEWELL COMPANY, Chestnut St., Newton Upper Falls 64, Mass.

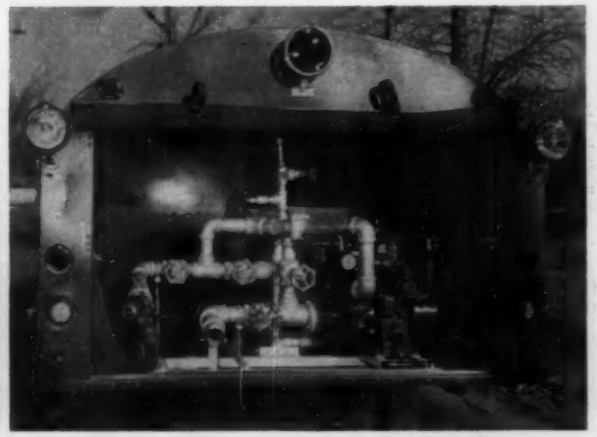
In Canada: Northern Electric Co., Ltd., Belleville, Ontario

Informative - Yours For The Asking!

How Granite Falls, Minn., Protects 425 Farms

By ORVIL J. JOHNSON, *City Manager*

The 1,500-gallon tank truck. Note (right) rear end with pump and four-valve combination.



THE farmers living around Granite Falls, Minn. are served by 24 volunteer firemen, a 1952 International pumping engine with two-way radio and a 1947 International tank truck. To provide faster response to fire calls, all 425 farms in the 7 townships have been numbered and indexed as to location and the type of water supply.

The numbering system and the tank truck were provided this past summer after agreements had been signed by the governing board of each township. The annual agreement provides that the townships will pay the city at the rate of $2 per farm per year for fire protection.

Aluminum signs, 4 inches x 12 inches, were lettered for each farm. The coded sign "SR 16", for instance, stands for Farm #16 in Stony Run Township. There was no duplication of township initials, so the code remained simple and foolproof for all of the farms serviced. A sign was given to each farmer with instructions to mount it in a spot readily visible from the road.

Within the station, two cards for each farm are kept in a file adjacent to the trucks. The first fireman to arrive at the station removes both cards from the file. One card is to go with the first truck out, the second card is placed in a clip to inform any later firemen of the farm number and location.

The tank truck is the pride and joy of the department. It eliminates the problems caused by the lack of water. Its two-ton chassis carries a 1,500-gallon ellipsoidal tank. In a junk yard we found a war-surplus gasoline tanker, originally used at naval air stations for refueling planes—just what we were looking for. It has a large manhole type filler cap, internal baffles, pump compartment on the rear end, side-rails and walkways, hose compartments and even the holder for a fire extinguisher. It met all our needs.

City Mechanics George Knutson and Richard Hanson mounted the tank, built up the pumping unit and fitted the plumbing. As the accompanying illustration of the rear end shows, many of the fittings and valves crowded into the compartment in addition to the pump.

The pump is a 2½-inch Gorman-Rupp irrigation pump powered by an 8.5-hp gasoline engine. It has a 200-gpm capacity against a 25-foot head. The tank can be filled in 8 minutes by dropping the 2½-inch suction hose into the river, a slough or a pond. A reversal of the valve combination allows a 2½-inch hose to be used to transfer the water into the pumper. These operations can be performed without changing hoses or even removing them from the unit. For fighting grass fires, or for direct fire-fighting, two 1½-inch hoses are used with a siamese valve connection.

Our normal hose complement consists of 30 feet of 2½-inch suction hose, 100 feet of 1½-inch hose, and 100 feet of 2½-inch hose.

In extremely cold weather, the pump engine is started before leaving the station. A bypass valve is opened and the warm water is continually circulated through the pump and the piping. The warm water along with the heat of the exhaust is more than adequate to keep the equipment in working order during the coldest weather.

In view of the numbering system, the tanker and the radio, we feel that the farmers in our area have very good fire protection. One might wonder about the concern for the farmers, but this is a rural agricultural community and there is necessarily close cooperation between the city people and the rural people.

Fire Losses in 1957

THE country's fire losses hit a new record high of $1,275,000,000 last year. Fire deaths totaled 11,300—an increase of 700 over 1956, according to the National Fire Protection Association.

In 1956, by comparison, property loss was $1,231,576,000 and there were 10,600 fire deaths.

The worst loss-of-life fire of 1957 occurred when a nursing home in ***Warrenton, Mo.*** burned on February 17, 1957. There were 72 fatalities. The year's biggest loss in property damage was a rubber reclaiming factory in ***Butler, N. J.*** It was destroyed by fire on February 26, 1957 for a loss of $14,000,000.

Informative Catalogs - Yours For The Asking!

These catalogs contain information of great value to public officials and engineers. Write directly to the manufacturers, or use the Post Card on the insert following Page 54.

Water Meters for Every Need

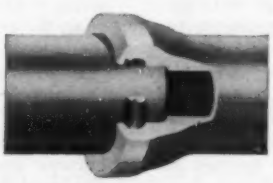
508 Tell your water metering needs to HERSEY MANUFACTURING CO., DEDHAM, MASS., and without doubt your requirements will be met by one of the many meters fashioned by this company. For the Hersey line is most complete and assures accurate measuring of rates of flow. For complete information write the company.

Snug-Fitting Pipe Joints

509 Clay sewer pipe with Wedge-Lock Plastisol joints wedge in, lock tight, and prevent infiltration and root penetration. Installation is fast and easy and helps keep costs down. For literature and a working demonstration, write NATIONAL CLAY PIPE MANUFACTURERS, INC., 1820 N ST., N.W., WASHINGTON, D. C.

QUIZ SHOW

WHAT IS THIS MAN DOING?



Photograph shows a workman assembling a McWane *Tyton Joint with a Fork Tool. It is all done in a couple minutes, after the Tyton Gasket has been placed in the Tyton bell. The Fork Tool is either rented or sold by McWane. However, many pipe crews use an ordinary crowbar to accomplish the same thing on pipe 2-inch to 8-inch diameter. McWane Tyton Joint pipe eliminates need of bell holes, reduces construction time and costs. Write for McWane Tyton Joint Folder. *Patent Pending, Trademark ®

IMMEDIATE SHIPMENT 2" & 2¼" THRU 12"

McWANE CAST IRON PIPE COMPANY
GENERAL OFFICES & FOUNDRIES, BIRMINGHAM, ALA.
Sales Offices: Dallas Chicago Kansas City New York Birmingham

Toward Better Municipal Water Supplies

510 To help communities produce a better treated water, GENERAL FILTER CO., AMES, IA., has issued *Bulletins* 5717, 5763, and 5782. Respectively, they deal with GFC equipment and services; zeolite water softening equipment, its importance and the adverse effects of hard water; and design details on heavy-duty rapid-mixing equipment for small and large plants. For your copy, write to the company.

Protects Concrete Sewer Pipe

511 With Teckote, your concrete sewer lines are fully protected against concentrations of hydrogen sulfide gas, submergence in water, and other erosive conditions. It is a liquid of 100% solids in heavy homogeneous films, is applied in a single operation, without heat, and can be handled within an hour after application without being damaged; curing takes 48 hours. Additional information and detailed test results may be obtained from DEPT. C., TECKOTE CORP., P. O. DRAWER 155, BIRMINGHAM, ALA.

Cook Outs in City Parks

512 The Parkmaster, with 15-inch x 22-inch cooking surface, wide utensil shelves, positive draft control and swivel-mounted body, is designed for recreation area cookery. Installation costs are low and ash removal quick and easy. For complete specifications, write HANCOCK IRON WORKS, 50 W. PIKE ST., PONTIAC, MICH.

Street-Name Signs of Porcelain Enamel

513 Your community's streets can be clearly marked and easy to find day and night. Porcelain enamel fused on the finest steel and fully embossed provides a sign that is uniformly reliable, nonfading and strong. For details, and for a free illustrated leaflet, write FERRO ENAMELING COMPANY, 1100 FIFTY-SEVENTH AVE., OAKLAND 21, CALIF.

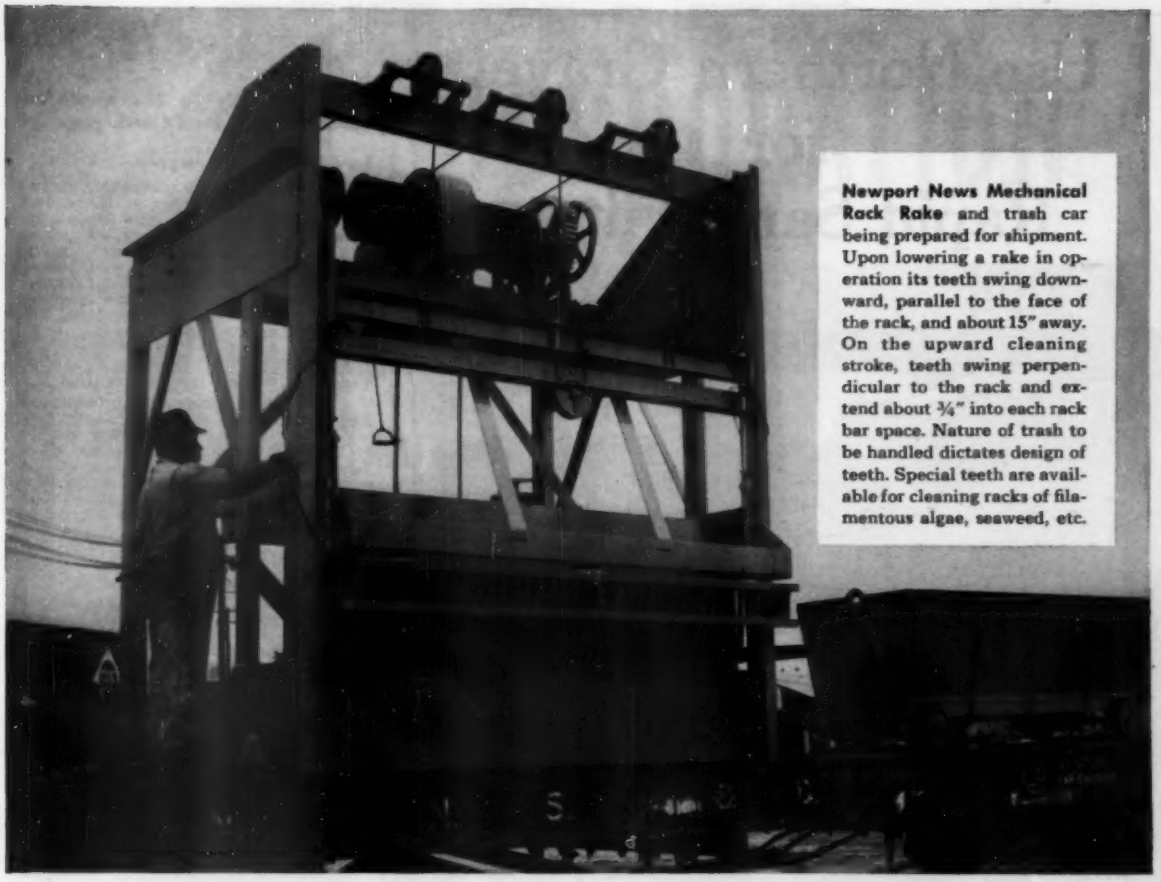
Cast Iron Pipe

514 Properties inherent in cast iron pipe have made it a favorite with water works men for innumerable years. Full flow, tough beam strength, effective resistance to corrosion, nontuberculating cement lining and long life are some of the characteristics that account for its record. Details are available from CAST IRON PIPE RESEARCH ASSN., SUITE 3440, PRUDENTIAL PLAZA, CHICAGO 1, ILL.

Reliable Water Conditioning

515 Whether for municipal water purification, industrial water conditioning, or swimming pool recirculating systems, Roberts water purification installations can be depended upon to give reliable service. For complete information and descriptive literature, write ROBERTS FILTER MFG. CO., DARBY, PA.

(See page 34 for more Bulletins)



Newport News Mechanical Rack Rake and trash car being prepared for shipment. Upon lowering a rake in operation its teeth swing downward, parallel to the face of the rack, and about 15" away. On the upward cleaning stroke, teeth swing perpendicular to the rack and extend about ¾" into each rack bar space. Nature of trash to be handled dictates design of teeth. Special teeth are available for cleaning racks of filamentous algae, seaweed, etc.

Positive cleaning action calls for guided rack rakes

Excessive loads of trash cannot push a Newport News rake away from the racks.

And there's no chance of the rake *riding over trash* on the upward cleaning stroke. Nor will its teeth drop the debris. Because Newport News builds the rake to operate in channel guides... for *positive cleaning action.*

That's why efficient rack cleaning assures the maximum head at intakes and is yours when you put a rugged and dependable Newport News Mechanical Rack Rake on the job.

Maximum width of a single rake is determined by design of the forebay. Where a single bay is extremely wide, intermediate guides are sometimes installed to reduce width of the rake. Such installation is relatively inexpensive.

A power-operated Newport News Mechanical Rack Rake, under ordinary conditions, enables one man per shift to keep racks clean for a dozen bays, from 5'-6" to 28'-6" in width.

Trash is cleaned from the rake manually, or by a mechanical "sweep", into a flume, a car or onto a trash apron. Local conditions and nature of the trash dictate method of disposal. The many typical installation arrangements fit most needs, but each installation is a custom built job.

We invite inquiries from water users who are troubled with trash. Write for your copy of "RACK RAKE", an illustrated booklet describing the operation and advantages of the Newport News Mechanical Rack Rake.

Newport News
Shipbuilding and Dry Dock Company
Newport News, Virginia

Use Northern Gravel for Rapid Sand Filter

Philip Kobie, Superintendent of this Water Plant in Berea, Ohio writes: "Prices quoted to us were very good and orders were shipped without delay. This was appreciated because we only had a limited time to do this job. We will recommend this company anytime to any and every one."

Filter Sand Specifications

are carefully laid out. The Effective Sizes and Uniformity coefficients used by Consulting Engineers and also recommended by the American Water Works Association are the result of long years of research and experience.

The Northern Gravel Company is equipped to give you prompt shipment whether it be one bag or many carloads, exact to specifications. Filter sand can be furnished with any effective size between 0.35 MM and 1.20 MM.

Chemical Quality

of the filter sand is also important. It must be hard, not smooth, and free of soluble particles. This requires perfect washing and grading facilities. We have every modern device for washing, drying, screening and testing.

Filter Gravel

supporting the Filter Sand Bed, must be in turn, properly graded to sizes calculated to support the Filter Sand, and be relatively hard, round and resistant to solution.

Northern Gravel has no equal in facilities and our reserves of both sand and gravel are inexhaustible. Northern Gravel Company has been in business over 40 years. We guarantee uniformity of products and our records enable us to duplicate your requirements on short notice. Our location is central and we have commodity rates in every direction.

Northern Gravel Company

Box 307 **Muscatine, Iowa** Phone: AMherst 3-2711

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Lay Pipe Underwater

516 For that difficult underwater installation, specify American Molox Ball Joint pipe—that's what it was designed for. It's ruggedly constructed, adapts to a variety of installation methods, and its joints stay bottletight under pressures up to several hundred psi. Its special features are described in a 32-page booklet available from AMERICAN CAST IRON PIPE CO., BIRMINGHAM 2, ALA.

For Complete Fire Protection

517 To assure complete fire protection to your community, interconnect city circuits to the private alarm systems in industrial plants, schools, public buildings, etc. An efficient and simple way to accomplish this is through the Master Box. For full information, write THE GAMEWELL COMPANY, CHESTNUT ST., NEWTON UPPER FALLS 64, MASS.

Send for Sample Sign

518 Interested in really tough, trouble-free traffic signs for your community? The type that takes long years of punishment and still retains visibility and shape? Then investigate Syloy signs. Send for your free, full-size testing sample, and for complete information, to THE GENERAL TIRE AND RUBBER CO., REINFORCED PLASTICS DIV., DEPT. 4, MARION, IND.

Locates and Traces Pipe Quickly

519 Locating, tracing and centering of pipe is made considerably easier when a Detectron "505" electronic pipe detector is used. Municipal utility companies find that it can also measure pipe depth and separate parallel pipe. For details on this time- and cost-saving device, write COMPUTER-MEASUREMENTS CORP., 5528 VINELAND AVE., DEPT. 54-C, N. HOLLYWOOD, CALIF.

Dependable Fire Hydrants and Gate Valves

520 Mueller AWWA improved fire hydrants and gate valves are matched in quality and dependability to give top performance to municipal fire protection and water supply systems. They are easy to maintain, safe operating and do their jobs with unchallenged excellence. For details, write to MUELLER COMPANY, DECATUR, ILL.

Fluorescent Lighting

521 Florescent lighting for nearly every type of street, for parking lots, for shopping centers and for underpasses is discussed in a 4-page folder. Included, also, is a brief discussion of Power Groove lamps which give a strong boost to street lighting performance. For your copy of *GEA-6441A*, write to GENERAL ELECTRI CO., SCHENECTADY 5, N. Y.

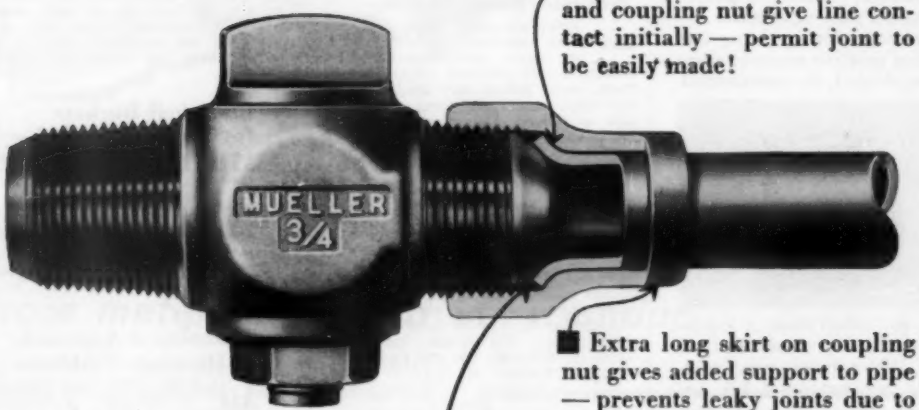
Street Rollers

522 Grade variations are no challenge to Huber-Warco tandem rollers, for once desired speed is set for a surface course the rollers automatically maintain it. Ease of operation and smooth roller performance make these units ideal street maintenance tools. For the model best suited to your needs, write HUBER-WARCO COMPANY, DEPT. 4-AC, MARION OHIO.

(See page 36 for more Bulletins)

MUELLER® CORPORATION STOPS

. . . *with* MUELLER
copper service pipe connection



■ Convex surfaces on stop body and coupling nut give line contact initially — permit joint to be easily made!

■ Extra long skirt on coupling nut gives added support to pipe — prevents leaky joints due to pipe movement!

Sizes from ½" through 2"

■ Opposed convex surfaces do not compress end of flange — give greater resistance to pipe pulling out.

See the new, automatic
Mueller CL-12 *Drilling Machine!*

At the Mueller Exhibit
AWWA Convention
Dallas, Texas

April 20th through the 25th

MUELLER CO.
DECATUR, ILL.

Factories at: Decatur, Chattanooga, Los Angeles; In Canada: Mueller, Limited, Sarnia, Ontario

Prestressed Concrete Tanks Show Big Savings

Maintenance Costs Cut By 75%

Over a 50 year service life, a prestressed concrete tank will show a 75% saving in total maintenance costs over a steel tank of the same capacity. In today's economy, such a long range saving has tremendous appeal to municipalities and water companies throughout the world. When your tank requirements are in the planning stage, these calculated maintenance costs should be considered. Average yearly maintenance on a 3,000,000 gallon steel tank is estimated at $2500 per year at current prices. For a prestressed concrete tank, maintenance is negligible; however, occasional painting for color effect may be desired.

When the charges for servicing the initial cost plus relative maintenance allowances are plotted, the prestressed

concrete tank will often show a lower out of pocket cost to the owner in less than 5 years. When these costs and their increases are extended for an expected service life of 50 years, the savings to the owner with prestressed concrete are enormous.

The prestressed concrete tank is also a good looking tank . . . it is inherently strong and extremely stable . . . it is designed and built for permanence.

And, 75% of the contract price is spent right in your local community . . . construction is done with materials and labor available locally.

Write today for more information on Preload Prestressed Concrete Tanks.

THE PRELOAD COMPANY, INC.
211 East 37th Street
New York 16, New York

•

PRELOAD CONCRETE STRUCTURES, INC.
837 Old Country Rd., Westbury, L. I., N. Y.

PRELOAD MIDWEST CONSTRUCTION CO.
2211 East 19th Street, Kansas City, Mo.

HERRICK IRON WORKS
28400 Clawiter Road, Hayward, California

THE PRELOAD COMPANY, INC.
Jefferson Tower Bldg., 351 Jefferson, Dallas, Tex.

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Water and Sewage Pumps and Engines

523 The broad line of F-M equipment gives you the opportunity to match the right pump with the right engine to give maximum pumping efficiency to your water supply and sewage handling operations. To discover how these matched units can work best for you, write FAIRBANKS, MORSE & CO., DEPT. AC-4, 600 S. MICHIGAN AVE., CHICAGO 5, ILL.

Top-Performing Tractor Shovels

524 Whether loading from stockpile or windrow, Hough Payloaders really deliver tonnage. These rugged, fast-loading tractor shovels come in several models with varied carrying capacities. Their on-the-job efficiency is proved by top performance. For complete information and data, write THE FRANK G. HOUGH CO., 710 SUNNYSIDE AVE., LIBERTYVILLE, ILL.

Accurate Water Meters

525 American water meters do their job with consistent accuracy. Simplicity of design and rugged construction combined with precision manufacturing help them resist failure and keep them out of the repair shop. All parts are interchangeable to reduce maintenance costs. Details are available from BUFFALO METER CO., 2902 MAIN ST., BUFFALO 14, N. Y.

Portable Pump

526 Service utility crews will find that the Homelite portable gasoline engine-driven pump can be carried easily by one man to place of service. It pumps 15,000 gph, keeps seepage automatically at strainer level and is nonclogging. Guaranteed suction lift is 28 feet, and it is self-priming. For details and application, write HOMELITE, 104 RIVERDALE AVE., PORT CHESTER, N. Y.

Small Plant Sewage Treatment

527 YEOMANS BROTHERS CO. has just published a nontechnical case history presentation on the ABC's of sewage handling for single homes as well as developments up to 1500 homes. For your copy of *The Home Builders Guide to Effective Sewage Disposal*, write the company at DEPT. P, 1999 N. RUBY ST., MELROSE PARK, ILL.

Elevated Water Tanks

528 Water supply and distribution problems are readily solved with a Cole elevated tank. Soundly engineered and streamlined in contour, they range in capacity from 5,000 to 2,000,000 gallons. For pressure equalization, storage, emergency—whatever your need—there's a Cole tank to serve you. Write for *Tank Talks* to R. D. COLE MFG. CO., NEWNAN, GA.

Measures Areas Precisely

529 City engineers will appreciate the speed and accuracy with which optical planimeter Model 236/A measures areas of irregular plots and figures quantities of earth work. Its many exclusive features, compact balanced construction and low price add to its recommendation. For details, write FILOTECNICA SALMOIRAGHI, INC., 41-14 24th ST., LONG ISLAND CITY, N. Y.

Durable, Quality-Built Street-Name Signs

530 MIRO-FLEX CO., INC. offers 13 styles of street-name assemblies plus a complete line of traffic control and construction signs. All are embossed on zinc-coated Bonderized steel for long life, are highly readable and finished in high-grade enamels. For a complete catalog on these durable signs, write the company at 1824 E. SECOND ST., WICHITA 1, KANS.

Stabilizes Summer Roads Economically

531 To have roads bear the onslaught of summer traffic, you should support proper spring maintenance with a summer sweetener such as Columbia Calcum Chloride, either in high test flake or regular form. Annual gravel loss will be reduced up to 75%; effective dust control maintained; firm, smooth-riding roads assured. Write COLUMBIA - SOUTHERN CHEMICAL CORP., ONE GATEWAY CENTER, PITTSBURGH 22, PA.

Water Supply Measurement and Control Equipment

532 The full complement of Simplex equipment for the measurement and control of liquids and gases is the subject of *General Catalog* No. 005. Meters, flumes, gauges, rods, manometers, recorders, valves, venturi tubes, the Orthoflow System and the Laminair are all included and carefully described. For your catalog, write SIMPLEX VALVE & METER CO., 7 EAST ORANGE ST., LANCASTER, PA.

Clamshell Buckets for Digging and Rehandling

533 Specifications and job-action photos of the SCHIELD BANTAM CO., 234 PARK ST., WAVERLY, IA., ¾-yard general purpose clam bucket for deep or restricted digging operations and the ½-yard rehandling bucket, able to deliver up to 80 yards per hour production from stockpile, are given in the company's new *Bulletin* A-268. For your copy, write company.

Economical Approach to Drainage Problems

534 From Wheeling's *Culvert Handbook WC-233* highway designers and engineers can learn of the structural and economic advantages and applications of galvanized corrugated metal culvert pipe, accessories and fittings. Tables, graphs and technical illustrations give depth to the presentation. For your copy, write WHEELING CORRUGATING CO., WHEELING, W. VA.

Quick-Killing Larvicide

535 Because of its quick and effective kill, Tossits are gaining popularity with municipalities concerned with pest control. When tossed into mosquito-infested waters, Tossits dissolve quickly, spreading a lethal film in all directions on the waters' surface. One capsule larvicides 100 to 750 feet of water. For free literature, write WYCO INTERNATIONAL, 4811 CARNEGIE AVE., CLEVELAND 3, OHIO.

Cables for Fire Alarm and Traffic Control Systems

536 Ankoseal plastic insulated cables are engineered for quality to best serve the vital needs of municipal fire alarm and traffic control signal systems. For comprehensive information on these low-cost, trouble-free cables, write for *Fire Alarm and Traffic Control Cables* to THE ANSONIA WIRE & CABLE CO., ASHTON 9, R. I.

(See page 40 for more Bulletins)

Announcing the most revolutionary development

CASE HISTORY: How Badger PRP* helps communities meet rising costs without raising rates

*

Badger Planned Rehabilitation Program

increases water revenue 39.6%

from meters serviced in "roundup"

Increased revenue? *Really* lost revenue regained! A Midwestern community (name on request) stemmed an annual water revenue loss from old, inaccurate meters — turned it into water department *profits* with modern, accurate Badger meters.

Communities everywhere are joining in the Badger water meter rehabilitation program . . . the systematic replacement of outmoded meters or essential parts that robbed them of revenue.

Is your water department paying its way?

If not, it's time your community held its own water meter roundup — to end water waste from worn-out meters and parts, boost water department revenues, even help meet rising water department operating costs without raising rates. Send for our free booklet, "Take Five," a brief explanation of Badger's Planned Rehabilitation Program. And be sure to ask your Badger representative about our liberal water meter trade-in policy.

What makes the big difference in the meters Badger builds...

Exclusive Dovetail Thrust Roller Insert assures accurate registration

Case in point: Old style (A), with full length slot weakens chamber halves, makes them subject to distortion. New style (B) with 77% shorter slot retains original chamber strength and eliminates distortion. Dovetail design prevents shifting of insert but does not impair freedom of disc movement. Just one of many refinements in water meter construction available only with Badger's advanced meter design.

Water is vital

Badger Meters have conserved it better for over 50 years

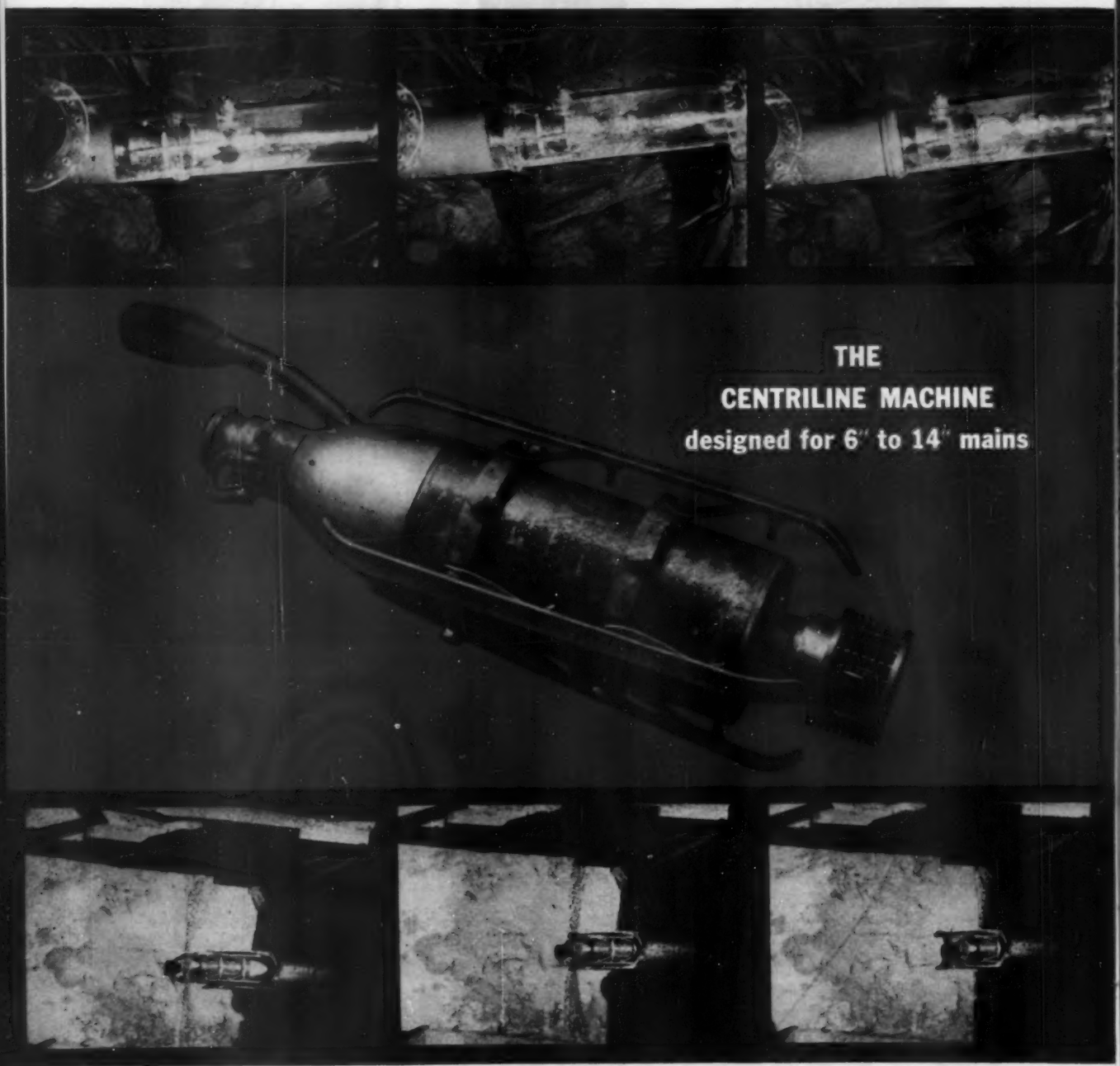
Badger Water Meters

BADGER METER MFG. CO • 4545 W. Brown Deer Rd. • MILWAUKEE 18, WISCONSIN
OFFICES IN PRINCIPAL CITIES

in the water works field in the past 15 years!

Announcing the most revolutionary development

NOW! THE CENTRILINE PROCESS



SEE THE NEW CENTRILINE MACHINE AND ITS PIPE LINING

AT BOOTHS 120 AND 121 • A. W. W. A. CONVENTION, DALLAS!

Catalogs for You

Steel Shapes and Plates

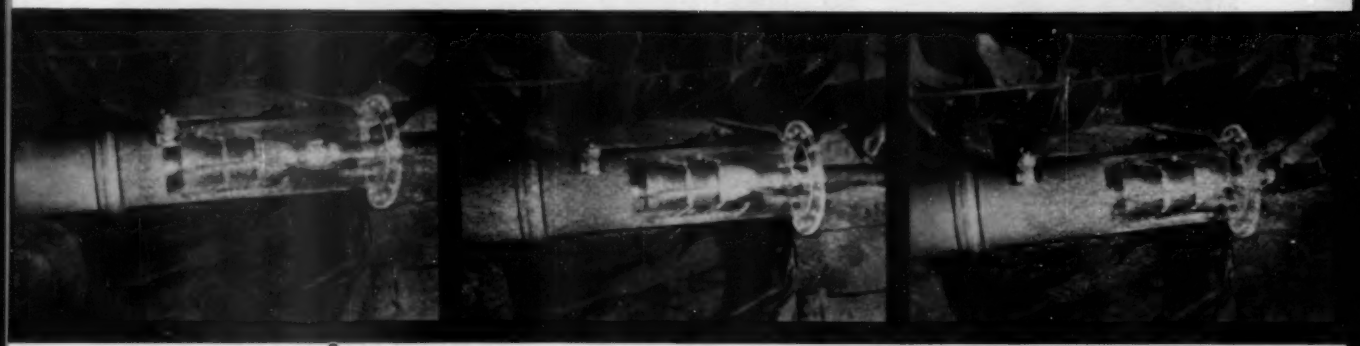
538 Whatever its contour, prefabricated structural steel will get that super-

High-Quality Pressure Pipe

540 The physical properties of steel and the structural and protective proper-

in the water works field in the past 15 years!

is also available for 6″ to 14″ mains



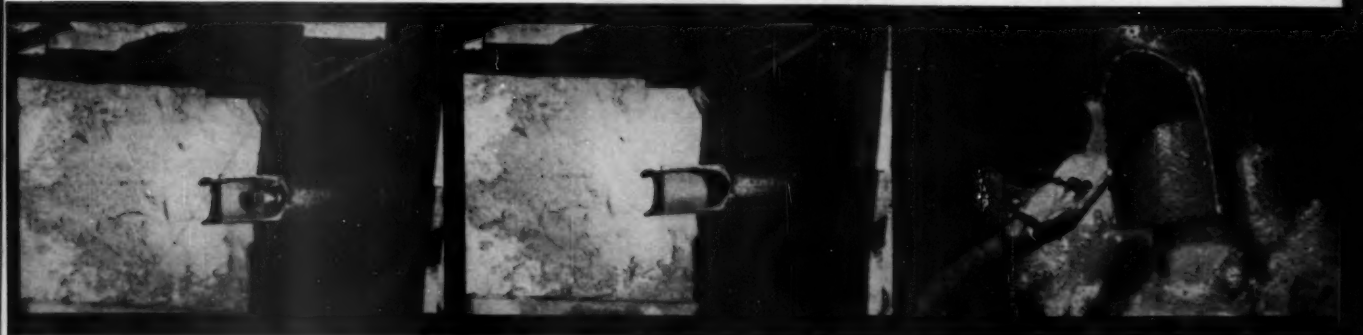
Cross section view, in special transparent pipe, showing new machine in action being pulled from left to right.

NOW, for the first time, your city's small but important transmission and distribution lines, including those used for fire protection, can regain their original flow capacity and pressure through the famous Centriline Process. A smaller version of the Centriline machine has been developed for use in 6" to 14" mains.

Here is how Centriline rehabilitates water systems' distribution grids. First, the pipes are cleaned to remove all tubercules, scale and loose materials resulting from corrosion. The Centriline machine is placed in the pipe and mortar is forced into a rapidly revolving head which applies a uniform coating on the pipe wall by centrifugal force. The thickness of the lining can be regulated by careful control of the machine. All of this is accomplished with a minimum of interruption to surface traffic, since the pipes are lined in place!

The advantages of using the new, small diameter Centriline machine in your mains are numerous. The new machine has a design feature which eliminates most excavations at valves, laterals and corporation cocks. The cost is lower than ever before. In addition, Centrilining permanently prevents future tuberculation, corrosion or leakage . . . reduces maintenance and pumping costs . . . raises distribution pressures and efficiency and extends the life of steel or cast iron pipe indefinitely. Send today for your free copy of our illustrated booklet which fully describes how Centriline can help you salvage worn out water lines of every size.

View of machine at work in special cut away pipe illustrating centrifugal application of cement-mortar.



CENTRILINE CORPORATION

A Subsidiary of Raymond Concrete Pile Company

140 Cedar Street
New York 6, N.Y.
WOrth 2-1429

Branch Offices in Principal Cities of the United States, Canada and Latin America

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Water Is Their Business

537 Layne & Bowler knows the indispensability of water to community life, and so fashions its water wells, pumps and systems to give the maximum—in rated performance, efficiency of operation and economy. For complete information on L&B facilities, write LAYNE & BOWLER, INC., MEMPHIS 8, TENN.; request *Bulletin No.* 100.

Steel Shapes and Plates

538 Whatever its contour, prefabricated structural steel will get that superstructure up fast. Details, dimensions and weights of steel shapes and plates are contained in a handbook, titled *Hot Rolled Carbon Steel Shapes and Plates*, available from UNITED STATES STEEL CORPORATION, 525 WILLIAM PENN PLACE, PITTSBURGH 30, PA.

Nonclog Sewage Pumps

539 Have you seen *Bulletin* 121*MV*? It's all about Aurora nonclog Mono-Vane single passage impeller pumps which require no counter-balance and are suited to handle long stringy solids, industrial by-products and other wastes. For your copy, write AURORA PUMP DIV., THE NEW YORK AIR BRAKE CO., 66 LOUCKS ST., AURORA, ILL.

"WE CERTIFY"

M & H welcomes the suggestion of the American Water Works Association to certify the quality of products made to conform to current AWWA specifications. This is a matter of importance to the water works industry. For the present, the procedure is not completely resolved; nevertheless the program as such will reflect a valuable contribution to users of water works materials.

All M & H products listed as AWWA standard (either valves or hydrants) are made in strict compliance with latest AWWA specifications.

M & H products have been developed through many years of research in engineering, design, foundry practice and water works operation. This Company's greatest asset today is the confidence of engineers in the quality and high standards of its products.

MH

M&H VALVE
AND FITTINGS COMPANY
ANNISTON, ALABAMA

SUBSIDIARY OF WALWORTH

High-Quality Pressure Pipe

540 The physical properties of steel and the structural and protective properties of concrete are interwoven to create strength and long life for American Concrete Cylinder Pipe, ideal for the pressure transmission of water. Available in inside diameter ranges of 12 inches through 60 inches, it comes in standard lengths of 32 feet. For details, write AMERICAN PIPE AND CONSTRUCTION CO., 4635 FIRESTONE BLVD., SOUTH GATE, CALIF.

Stops Rust and Corrosion

541 Solve pipe condensation problems the easy, inexpensive way; brush on No-Drip Plastic Coating. Quick-acting, it insulates and protects metal equipment to give added service life. It is also resistant to brine, acid and alkali, and can be used to protect concrete, brick and other materials. Send for your copy of the *NoDrip Data Handbook*, available from J. W. MORTELL CO., 565 BURCH ST., KANKAKEE, ILL.

Long-Length Concrete Pipe

542 Long-length concrete pipe with tight steel and rubber Amseal joints will keep water where you want it—in, out, or both. Long lengths mean less handling and joint making and so are more economical and offer improved flow capacity. For additional information on Amseal subaqueous pipe, write AMERICAN-MARIETTA COMPANY, CONCRETE PRODUCTS DIV., 101 E. ONTARIO ST., CHICAGO 11, ILL.

Precise Water Meters

543 Calmet all-bronze, split-case water meters are highly dependable, give precision performance and are carefree maintenance-wise. For complete information on how these meters can best serve your municipal water system, write WELL MACHINERY & SUPPLY CO., DIV. OF WORTHINGTON CORP., FORT WORTH, TEXAS.

Small-Size Trencher Has Big Capacity

544 The Parsons 155 Trenchliner digs up to 25 feet of clean-cut trench per minute. Its working height of only 7 feet 4 inches permits it to work under overhead obstructions, and its 5-feet 4-inch width over crawlers make it ideal for operating in narrow, restricted areas. Full information on this utility-size unit is available from PARSONS COMPANY, NEWTON, IOWA.

Concrete Pressure Pipe

545 Your water transmission lines and large water mains should give you long life, freedom from tuberculation, corrosion and leakage and guarantee permanently high flow coefficients. Price Brothers will tell you how its concrete pressure pipe will meet these specifications and will send case histories to support its statement. Write to PRICE BROTHERS, DAYTON, OHIO.

Encourages Cleanliness, Reduces Clean-Up Costs

546 Encourage citizen participation in city-wide clean-up programs by placing Superior waste receptacles in convenient locations in all public areas. These all-metal units have tops with two full-width flaps to make disposal easier, and are available in sizes for all locations. For details, write JOHN WOOD CO., SUPERIOR METALWARE DIV., ST. PAUL, MINN.

(See page 44 for more Bulletins)

ABILITY

In the low-price "3"

ONLY PLYMOUTH WAGONS SEAT 9 BIG OFFICERS IN COMFORT

and both 2nd and 3rd seats fold flush into floor when not in use!

Just *try* to seat 3 big officers comfortably on the rear seat of *any* wagon made by the "other two"! But Plymouth's *exclusive* rear-facing third seat is full width, has full headroom, hiproom and legroom. And it's easy to get in and out in a jiffy—a major advantage in police work!

Even the lowest-priced Plymouth wagon is as big as any you can buy, at any price! Wheelbase: 122 inches. Cargo space, with 2nd and 3rd seats folded down: over 10 feet long, with over 100 cubic feet capacity. Total headroom, legroom, hiproom, elbowroom is *far* the greatest in the low-price "3"!

What's more, Plymouth gives you, as standard equipment on all models *at no extra cost*, Torsion-Aire—the revolutionary new suspension system that provides *level cornering* at all speeds, on any curves . . . eliminates nose-dive on stops . . . ends roll and sway . . . makes police service *safer*, more comfortable! And Plymouth's new "Police Special" brakes are faster, smoother, safer!

Get the whole story from your Plymouth dealer before you invest in *any* wagons for your police force. You'll save money with Plymouth wagons . . . and they'll do wonders for the morale of your fine officers!

Police Cars by **Plymouth** *. . . your community's best safety value!*

ABILITY . . .

6 reasons why Cast Iron Pipe is #1 choice of U. S. A.

1. **HIGH FLOW CAPACITY . . .** Cement lined cast iron pipe and fittings will not tuberculate . . . delivers a full flow for the life of the pipe.
2. **LONG LIFE . . .** 42 North American cities are still using cast iron water mains laid 100 years and more ago. Hundreds more have passed the 50 year mark.
3. **BEAM STRENGTH . . .** Cast Iron Pipe is inherently tough . . . stands up under heavy traffic load, soil displacement and disturbance.
4. **EXTERNAL LOAD RESISTANCE . . .** 6" Class 150 Pipe withstands a crushing load of 17,900 pounds per foot . . . nearly 9 tons.
5. **CORROSION RESISTANCE . . .** Cast Iron Pipe effectively resists corrosion . . . vital factor in its long life and dependability.
6. **TIGHT JOINTS . . .** A full range of leak-proof, low cost, easy-to-assemble joints for pipe and fittings are available for all conditions.

THE MAN WHO CHOOSES CAST IRON PIPE TODAY WON'T PAY FOR IT AGAIN TOMORROW!

CAST IRON

Cast Iron Pipe Research Association
Thos. F. Wolfe, Managing Director
Suite 3440, Prudential Plaza, Chicago 1, Ill.

MODERNIZED **cast iron**

Catalogs for You

Centrifugal Pumps

Floatless Controls

NOT PROBABILITY!

Cast Iron Pipe's record of maintaining high flow capacity throughout its long life is FACT not FICTION!

Carrying capacity without strength is like running a rickety car with a powerful engine . . . sooner or later it will shake apart.

Why choose between high flow, strength and long life when cast iron pipe gives you *all* of them?

Specify America's #1 pipe and your water system will serve long after the bond issue is retired.

* *Here is the proof!*

FLOW FACTORS FOR CEMENT LINED CAST IRON PIPE

LOCATION	SIZE	TEST SECT. IN FEET	VELOCITY F.P.S.	AGE YEARS	W & H "C" FACTOR
Bowling Green, Ohio	20"	45,592	0.7-2.4	New	142.5
Chicago, Illinois	36"	7,200	2.6-3.6	New	147
New Orleans, La.	12"	39,650	1.2-2.9	New	141
Corder, Mo.	8"	21,350	0.9-2.3	New	143
Univ. of Illinois	8"	400	3.14	New	150
Concord, New Hamp.	14"	500	1.7-2.2	New	151
Concord, New Hamp.	12"	500	2.0-3.4	11	142
West Palm Beach, Fla.	12"	500	3.6-5.4	15	139.5
Greenville, S. C.	30"	87,376	2.4-2.7	12	148.5
Corpus Christi, Tex.	30"	65,641	1.1-1.8	6	146
Summerville, S. C.	8"	500	1.98-2.43	13	142.5
Champaign, Illinois	16"	3,920	3.1-5.6	22	139.3

*Available upon request: Booklet containing flow test and tables on Cast Iron Pipe.

pipe FOR MODERN WATER WORKS

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Lawn Sprinkler Valves

547 Quick-Coupling valves in combination with Turf King sprinklers provide fast watering and maximum efficient coverage over large turf areas. The valves are self-closing, easy to handle and grit-proof. For details, and for information on the rotating Turf Kings, write BUCKNER MANUFACTURING CO., 1615 BLACKSTONE AVE., P. O. BOX 232, FRESNO 8, CALIF.

Centrifugal Pumps

548 De Laval centrifugal pumps are active in a large number of the nation's municipal water works. They are designed to meet all water works requirements, and range up to 100 million gallons per day. *Bulletins* 1004 and 1005 give data on them; write today, to DE LAVAL STEAM TURBINE COMPANY, NOTTINGHAM WAY, TRENTON 2, N. J.

Municipal Utility Truck

549 The Fleetside, newest addition to the Chevrolet Task Force fleet, is said to provide 50% more cubic capacity than conventional pickup trucks. It combines superb engineering and solid construction. Details are obtainable from CHEVROLET DIVISION OF GENERAL MOTORS, DETROIT 2, MICH.

Floatless Controls for Water, Sewage Plants

550 By using B/W floatless liquid level controls you automatically eliminate the annoying and persistent troubles caused by floats and their movable parts. To learn the application of these controls in water and sewage treatment plants, write for a new catalog to B/W CONTROLLER CORP., 2106 EAST MAPLE ROAD, BIRMINGHAM, MICH.

Fencing for Property Protection

551 For playgrounds, school yards, parking lots, plants, outside storage areas —wherever basic property protection is needed—sturdy, trouble-free Anchor chain link fencing and gates will do the job. Obtain complete information from ANCHOR FENCE DIV., 6903 Eastern Ave., ANCHOR POST PRODUCTS, INC., BALTIMORE 24, MD.

Motor Grader Works the Year 'Round

552 There's lots of power—and control —in the Allis-Chalmers 23,800-pound Forty Five—and it likes to work. In winter, when equipped with snowplow, it will keep roads open and traffic moving; during other seasons it's happiest finishing dirt and gravel roads. For details, write ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIV., MILWAUKEE 1, WIS.
open and traffic moving; during other seasons it's happiest finishing dirt and gravel roads. For details, write ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIV., MILWAUKEE 1, WIS.

Corrosion Control in Water Systems

553 Calgon TG, a sodium-zinc hexametaphosphate corrosion inhibitor easily fed to municipal and cooling water systems, gives a fast-forming protective film to metal surfaces, and is particularly advantageous in the mechanical cleaning of water mains. *Bulletin* 420-12-0 fully describes this glass platelet inhibitor. For your copy, write CALGON CO., HAGAN CHEMICALS & CONTROLS, INC., HAGAN BLDG., PITTSBURGH 30, PA.

Trouble-Free Incinerators

554 The extra-large dump-plate area of American Engineering incinerators minimizes the possbility of clogging when large objects pass through it. For other construction features that contribute to the trouble-free and economical operation of AE incinerators, write AMERICAN ENGINEERING CO., DEPT. S-108, WHEATSHEAF LANE & SEPVIVA ST., PHILADELPHIA 37, PA.

Attractive Water Storage Tanks

555 Horton Waterspheroids are functional, soundly engineered elevated tanks designed to give municipalities dependable gravity water reserves. They are easy to maintain and are built in standard capacities to 500,000 gallons. To help pace the growth of your community, write today to CHICAGO BRIDGE & IRON COMPANY, CHICAGO, ILL.; ask for literature on the new Watersphere and Waterspheroid.

Water Filtration by Microstraining

556 Microstraining provides an economical method of removing suspended matter from water. It may be used as a sole filtration process, to increase filter runs in both slow and rapid sand filters, and to provide postfiltration after flocculation and sedimentation tanks in place of rapid sand filters. Full information is available from GLENFIELD & KENNEDY, INC., 706 NORTH AVE., NEW ROCHELLE, N. Y.

(See page 47 for more Bulletins)

NEW . . . M&M BEAVER
BRUSH CHIPPER
M&M
BEAVER
AMERICA'S NO. 1 BRUSH CHIPPER
the only brush chipper that produces large or small chips
MITTS & MERRILL, SAGINAW, MICHIGAN
BUILDERS OF SPECIAL MACHINERY SINCE 1854

Write today for closest dealer and catalog No. 657 which gives the facts and exclusive features on all six new models of M&M Brush Chippers. See . . . Compare . . . Buy an M&M Beaver, America's No. 1 Brush Chipper. *Dealer Inquiries Invited.*

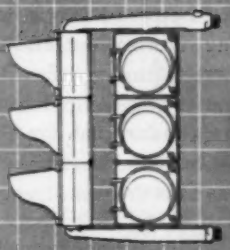
103

MITTS & MERRILL • 1003 So. Water Street • SAGINAW, MICHIGAN

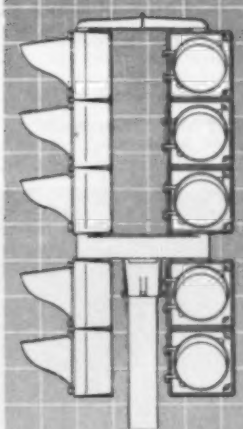
BUILDERS OF WORK-SAVING, MONEY-SAVING AND MATERIAL RECLAIMING MACHINERY SINCE 1854

AUTOFLOW

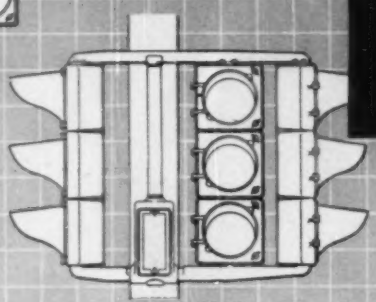
TYPE A 31 BME



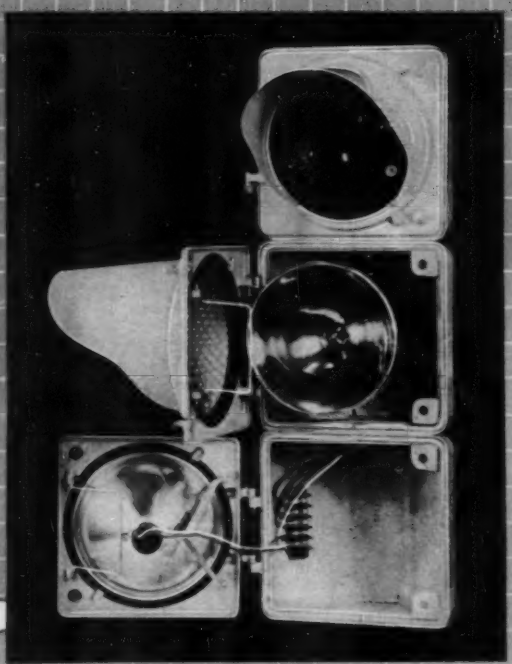
TYPE A 32 BMT



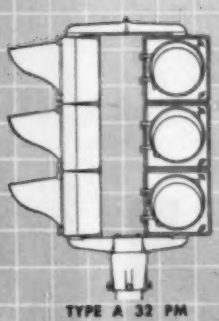
TYPE A 32 PT



TYPE A 33 SP



AUTOFLOW traffic signal equipment is built for today with tomorrow in mind. Simple unit construction makes AUTOFLOW signals adaptable to meet changing needs without costly duplication or replacement.



TYPE A 32 PM

SOUTHERN *Signals* INC.

222 BEACH STREET • P. O. BOX 1303 • SHREVEPORT, LOUISIANA

Catalogs for You

Cut fuel bills up to 50%

with International® 350 DIESEL POWER

When your jobs call for a tractor to go . . . go . . . go day in and day out, all season long, you can make a big cut in fuel costs with an International 350 Diesel. That's because diesel fuel costs less and you use less of it. Lower fuel consumption is especially noticeable on jobs involving intermittent and part-load operation—such as loader work, and trenching or excavating with a backhoe.

And it's a BIG tractor! 49 engine hp delivers over 5,800 pounds pull at the drawbar, or similar push for dozing. There's up to 1,000 pounds greater built-in weight than usual to tractors of this power class. This greater strength means *stamina* to stay on the job in the most rugged service. Power steering is available optionally to give you top driving ease.

International tractors are available with unit-matched International Pippin and International Wagner loaders and backhoes.

Proof on the job! Ask your IH Dealer to demonstrate. Hold your watch on a measured amount of fuel in the tank, see how an International 350 Diesel can cut your tractor operating costs. For catalog, write International Harvester Company, Dept. AC-4, P. O. Box 7333, Chicago 80, Ill.

SEE YOUR INTERNATIONAL HARVESTER DEALER

International Harvester Products *pay for themselves in use*—Farm Tractors and Equipment . . . Twine . . . Commercial Wheel Tractors . . . Motor Trucks . . . Construction Equipment—General Office, Chicago 1, Illinois

Catalogs for You

Dimensions and Weights on Cast Iron Pipe

New—Transistor-Powered Mobile Radios Up to 60 Watts

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Speeds Pipe Installations

557 A new folder from McWANE CAST IRON PIPE COMPANY fully explains how Tyton Joint pipe, which eliminates the need of bell holes, can reduce considerably construction time and costs of pipe installations. For details, and for information on the Fork Lift, an assembling aid, write to the company at BIRMINGHAM, ALA.

Large-Diameter Steel Water Mains

558 In 1926 BETHLEHEM STEEL COMPANY, BETHLEHEM, PA., completed installation of a 60-inch ID steel transmission main for the St. Louis water system. This pipe is still going strong, giving uniformly satisfactory service to a greatly expanded system and indicating even longer useful life. For details on steel pipe and linings, write the company.

Crosswalk and Center Striping

559 Striping Unit #458 is one of the new painting aids developed by Fenc-Painteit to help cities perform demanding painting tasks more easily. It produces quality work and is particularly suited for crosswalk or center striping. Details about it and other new developments and methods that can reduce your municipal paint bill are contained in the 1958 catalog of FENC PAINTER DIVISION, 4911 S. RACINE AVE., CHICAGO 9, ILL.

Outdoor Lighting Controls

560 Reliable control for all types of outdoor lighting is assured with Fisher-Pierce photoelectric controls; they are backed by a proven performance record. Call on THE FISHER-PIERCE CO., 94 PEARL ST., S. BRAINTREE 85, MASS.; it will meet the needs of your lighting control system with top engineering service—in design, installation, maintenance.

Diesel, Dual Fuel, and Gasoline Engines

561 Enterprise engines will meet your municipal power supply needs with diesel, dual fuel, and spark-ignited gas engines, from 73 to 7,703 hp for your sewage and water plants. Both stationary and portable models operate economically and are trouble-free. For further information about the unit tailored to your needs, write ENTERPRISE ENGINE & MACHINERY CO., 18th and FLORIDA STS., SAN FRANCISCO 10, CALIF.

Free Handbook on Traffic Devices

562 The quick way to get a satisfactory answer to your questions on aluminum traffic control devices is to consult the Alcoa *Handbook*. It contains sections on signs, details on installation and fabrication, discussions of cover processing methods, handling, striping, aluminum paint and other pertinent background material. For your free copy of this useful *Handbook On Aluminum Traffic Control Devices*, write ALUMINUM COMPANY of AMERICA, 1680-C ALCOA BLDG., PITTSBURGH, PA.

(See page 48 for more Bulletins)

St. Paul Pioneer Press

ST. PAUL, MINN., TUESDAY, OCTOBER 15, 1957 FIFTEEN

Teen-Agers Quizzed--

Wall Marks May Ruin $23,500 Shelter

Teen-age vandals who have been writing on the walls of a half-completed concrete shelter at ... ground may have done permanent ... ng. Parks and Playg... Monday.

Don't let this happen to your park!

If strong, sturdy Cyclone Fence had been installed around this park recreation area, this malicious vandalism might well have been prevented, and a costly repair bill avoided. Because Cyclone Fence offers unexcelled protection, many municipal authorities are using it extensively on all types of municipal projects—from parks to power plants.

Cyclone Fence establishes opening and closing hours for recreation areas. It simplifies admission collection at municipal events and helps eliminate gate-crashers. And it keeps thieves, vandals and trespassers away from power plants, municipal warehouses and sewage plants.

For more information on Cyclone Fence and Gates, get in touch with the nearest Cyclone Sales Office. Our trained personnel will be glad to consult with you without obligation.

USS Cyclone Fence

USS and Cyclone are registered trademarks

The slides and other equipment in this children's playground are safely protected from vandals and trespassers—thanks to Cyclone Fence.

Cyclone Fence Dept.
American Steel & Wire
Division of
USS United States Steel

Waukegan, Illinois · Sales Offices Coast-to-Coast · United States Steel Export Company, New York

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Streets Cooler After Flushing

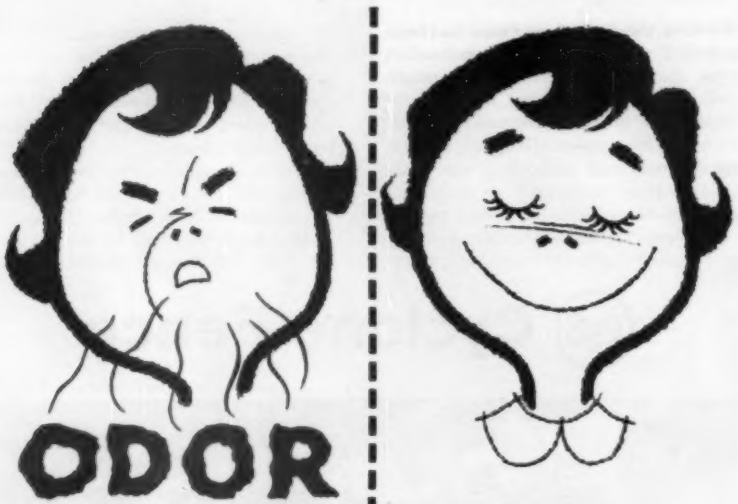
563 In a single pass, Etnyre street flushers not only emit high pressure streams of water able to clean streets up to 42 feet in width, they also cool hot pavements and settle dust. To learn how these flushers can best serve your community, write E. D. ETNYRE & CO., OREGON, ILL.

Dimensions and Weights on Cast Iron Pipe

564 A dimensions and weights specifications leaflet, that also includes joint materials, on Clow Bell-Tite Joint cast iron pipe is available from JAMES B. CLOW & SONS, INC., 201-299 NORTH TALMAN AVE., P. O. BOX 6600A, CHICAGO 80, ILL.

Tractor Scrapers

565 A new, full-color 24-page catalog on the design and operating features of Michigan 10½-, 18-, and 27-cubic yard heaped-capacity tractor scrapers—Models 110, 210 and 310—has just been announced by CONSTRUCTION MACHINERY DIV., CLARK EQUIPMENT CO., 2495 PIPESTONE ROAD, BENTON HARBOR, MICH.



ODOR COMPLAINTS! SOLVED ...with OZENE!

End odors—and the troublesome complaints they cause—quickly, easily, economically by using OZENE, the tested and proved material that controls odors two ways. OZENE's dual action (1) masks existing odors while it (2) attacks the causes of odors—sulphide-forming bacteria and mold microorganisms.

OZENE is currently being successfully used in:

- sewage, leather and rendering plants
- land-fill waste disposal projects
- dried milk, cheese, cannery and other food plants
- industrial lagoons
- new excess-capacity sewers
- drainage ditches
- incinerators
- storm sewers
- sewer breaks
- sludge de-watering
- fish-market areas
- refuse cans and trucks
- kennels, etc.

OZENE is a concentrated material and only small amounts are required for most applications. For odor-controlling sprays, OZENE can be diluted as much as 100-to-1.

Write specifying items desired (no cost):

1. OZENE test samples
2. Data on OZENE for odor control

If you have a special odor control problem, please describe it to receive our recommendation.

SOLVAY®

SOLVAY PROCESS DIVISION

Allied Chemical

ALLIED CHEMICAL & DYE CORPORATION

61 Broadway, New York 6, N. Y.

BRANCH SALES OFFICES:

Boston • Charlotte • Chicago • Cincinnati • Cleveland • Detroit • Houston
New Orleans • New York • Philadelphia • Pittsburgh • St. Louis • Syracuse

New—Transistor-Powered Mobile Radios Up to 60 Watts

566 *Bulletin EOR-547A* introduces the G-E line of transistor-powered two-way mobile radios. Designed for 12-volt systems and operative with either positive or negative ground (an important consideration in fleet operations), these transistorized power supplies operate on all communications bands. Discover the benefits of transistorization; write today to GENERAL ELECTRIC CO., COMMUNICATIONS PRODUCTS DEPT., SECTION 148, SYRACUSE, N. Y.

New Concrete Saw

567 Clipper's new Model C-180 concrete saw uses an 18-hp Wisconsin engine to deliver 23% more power than the C-146 which it replaces. Clutch-type water pump, 3-point no-bind blade suspension, positive screw feed and other improvements help make the C-180 highly maneuverable and efficient. For additional information, write CLIPPER MFG. CO., 2824 W. WARWICK, KANSAS CITY 8, MO.

Water Meters for Superior Service

568 There'll be no stoppage, no registers ruined, no fogging of dial faces and no leaky or bound stuffing boxes to service—if you use a Rockwell hermetically sealed register. These smooth-running, accurate gauges are built to operate for long life—even underwater. For additional information, write ROCKWELL MFG. CO., PITTSBURGH 8, PA.; ask also for *Bulletin* W-803; it describes the company's single-register compound meters.

Better Fire Hose

569 The multiple-woven construction of Eureka fire hose makes the hose stronger, safer to handle, more dependable in action. Fabrics used are specially treated to retard the formation of mildew and rot. This type of hose is available in 2-, 3-, or 4-ply construction. Write EUREKA FIRE HOSE, DIV. of UNITED STATES RUBBER, 1 MARKET ST., PASSAIC, N. J.

Elevated Water Storage

570 PITTSBURGH-DES MOINES STEEL CO., 3412 NEVILLE ISLAND, PITTSBURGH 25, PA., has issued a 20-page *Elevated Tank Brochure*, describing the designs and capacities of the company's various types of elevated water storage units. For your copy, write the company.

Swimming Pool Lighting

571 *Bulletin* 2638 from CROUSE-HINDS COMPANY, WOLF & SEVENTH NORTH STS., SYRACUSE, N. Y., discusses two types of underwater floodlights—Type SPS for use where there is a passageway around the outside pool wall and Type RP which requires neither passageway nor manhole. Diagrams, dimensions and construction features for each are included.

Raise Sunken Pavements, Sidewalks by Mud Jacking

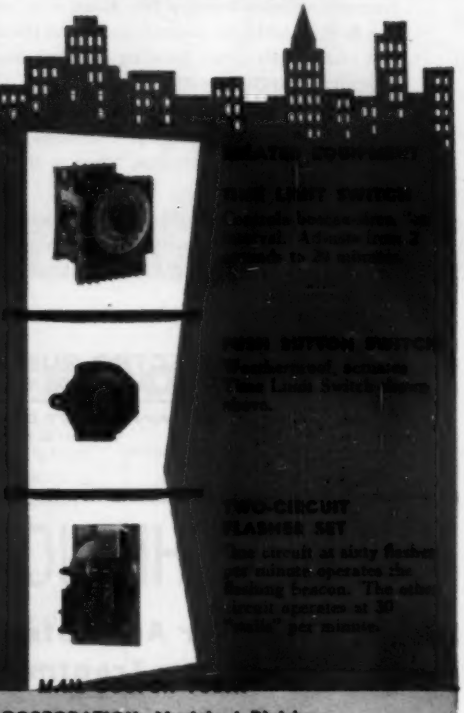
572 Whether you use the small, compact No. 10 or the big No. 50, you're using a low-cost method to raise sunken curbs, sidewalks and street slabs. The Koehring Mud-Jack pumps a soil cement slurry under pressure into small holes drilled through sunken pavements to leave a firm, permanent sub-grade. Send for *Mud-Jack Method* for full details; it's available from KOEHRING DIVISION OF KOEHRING CO., MILWAUKEE 16, WIS.

(See page 50 for more Bulletins)

CLEAR THE LANE

say it
twice with this
EAGLE

BEACON SIREN



Drivers see the flashing light over the noise of traffic and can easily hear the siren warning. Double visual safety is obtained. This dual-beacon warning, double-safety unit may be suspended at low lane intersections, or mounted on mast arm or post top. Non-adjustable beacon-siren like that shown may have flasher mounted internally.

Directionally adjustable units also available, for post top mounting only. For complete details on Eagle Beacon-Siren units and related equipment send coupon today.

EAGLE

EAGLE SIGNAL CORPORATION
Municipal Division Mattoon, Illinois
Eagle equipment saves lives . . . others time

EAGLE SIGNAL CORPORATION, Municipal Division, Dept. AC-458

Please send complete information on Eagle's new emergency traffic control system.

NAME AND TITLE _____

MUNICIPALITY _____

FULL ADDRESS _____

Where water is used, process equipment and storage tanks are sure to corrode unless protected by an E.R.P. cathodic protection system. Even with these concrete high rate clarifiers at the St. Regis Paper Company plant near Jacksonville, Florida, it pays to protect the metal parts with an E.R.P. cathodic system.

Engineering PLUS... E.R.P. cathodic protection pays off in maintenance savings

In industry or public service, water treatment is a big investment. To protect that investment in water treatment equipment could be a tremendous maintenance job. Even with concrete clarifiers, it pays to use E.R.P. cathodic protection. When there are metal tanks involved, just one cleaning and painting can cost more than a complete E.R.P. cathodic protection system.

From preliminary design to continuing periodic corrosion surveys, experienced corrosion engineers measure, analyze and design specifically for your corrosion problems. That is the only way corrosion can be virtually eliminated.

E.R.P. engineering plus prevents corrosion of water storage tanks, water and sewage treatment structures and pipelines. For full information on how E.R.P. can help you save maintenance costs, write for bulletin E-46.00.

ERP CATHODIC PROTECTION SINCE 1935

ELECTRO RUST-PROOFING CORP.
A SUBSIDIARY OF WALLACE & TIERNAN INC.
30 MAIN STREET, BELLEVILLE 9, NEW JERSEY
CABLE: ELECTRO, NEWARK, N. J.

W&T DRY CHEMICAL FEEDERS

For Accurate Feeding Of Water Treatment Chemicals

Full line of wide range dry chemical feeders capable of controlling a few ounces to 3000 lbs. per minute.

Write for Bulletin M-38 for complete Dry Feeder information.

WALLACE & TIERNAN INCORPORATED
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Custom-Built Municipal Swimming Pools

573 Let the engineering integrity, skilled craftsmanship and fine equipment of PADDOCK OF CALIFORNIA create a municipal pool for your community that is custom-built in quality and feature. Or if your present pool needs parts replacement, write to the company for its equipment catalog at 14606 ARMINTA ST., VAN NUYS, CALIF.

Vitrified Clay Products

574 The bulletin, *Vitrified Clay Products*, is designed as a quick reference on installation data, specifications and dimensions of clay pipe—vitrified, Wedge-Lock, perforated, Slip-Joint—of clay flue lining, clay liner plates, Lap-Lok Wall Coping, clay terrace tile, septic tanks and ventilator caps. For your copy, write ROBINSON CLAY PRODUCTS CO., 65 W. STATE ST., AKRON 9, OHIO.

Traffic Control Equipment

575 Autoflow fixed-face and adjustable traffic signals, downlight beacon, neon Walt-Walk signals, pulsating red and Model 102 controls are the main subjects of *Bulletin* 5603, a guide to the traffic control equipment available from SOUTHERN SIGNALS INC., 222 BEACH ST., P. O. BOX 1303, SHREVEPORT, LA.

Water Supply Pressure Connections

576 Smith mechanical joint tapping sleeves and valves provide a speedy, up-to-date way to make pressure connections—even in wet excavations and under poor weather conditions. To find out the exclusive features of these units, write THE A. P. SMITH MFG. CO., DEPT. 56, EAST ORANGE, N. J.

3-Way Control Valves

577 Construction details, sizes and pressure ratings are given in *Specification* S810-6 for Series 800, 3-way diaphragm control valves. These cover single- and double-seated designs for mixing or diverting service as used in water and sewage treatment plants and recessing applications. For your copy, write MINNEAPOLIS-HONEYWELL REGULATOR CO., VALVE DIV., FORT WASHINGTON, PA.

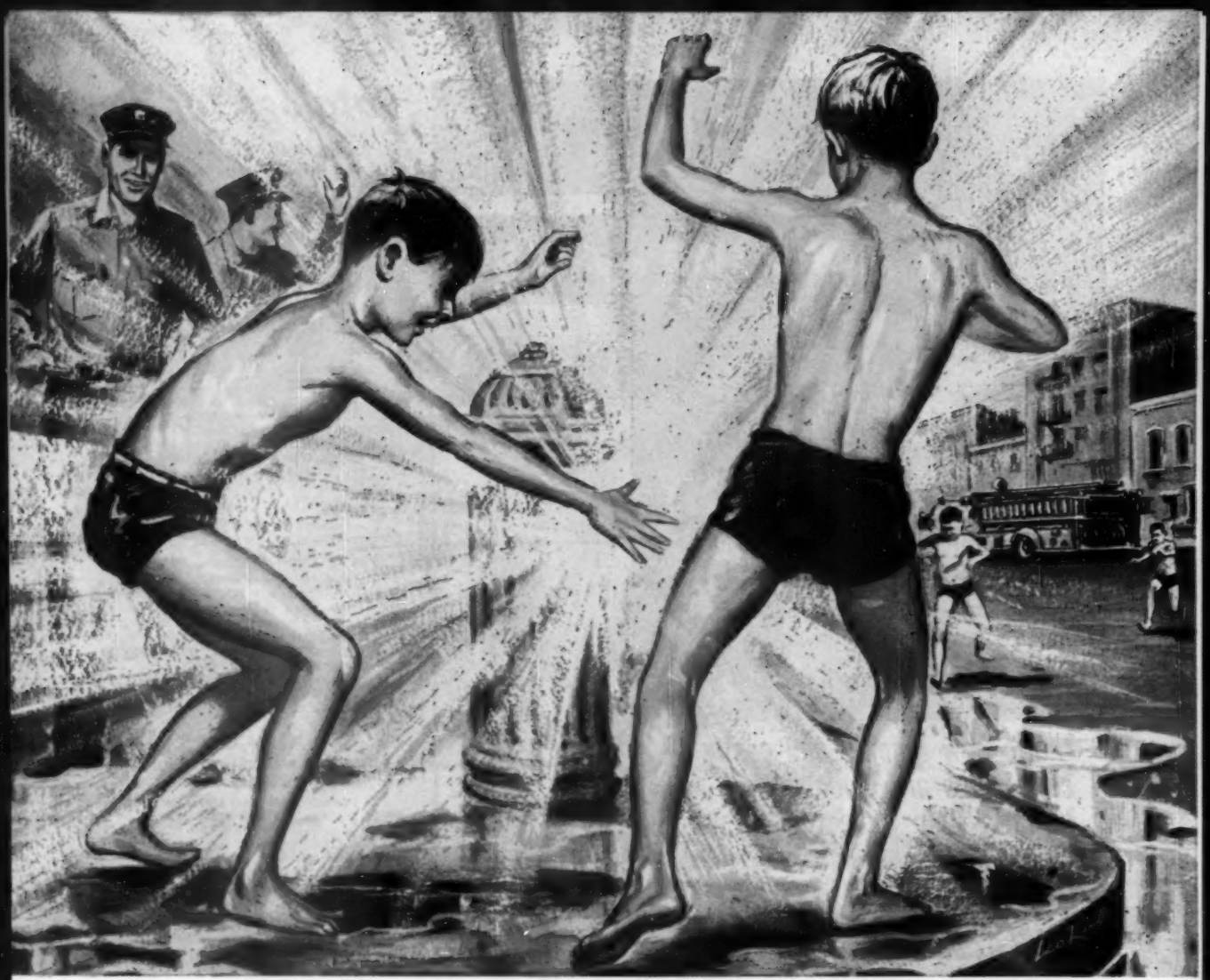
Fresh Water from Sea Water

578 Another Maxim sea water distillation unit is converting sea water into pure, fresh water, this time at Bermuda's Castle Harbor Hotel at the rate of 20,000 gallons per day. For your requirements—industrial or human—write THE MAXIM SILENCER CO., 103 HOMESTEAD AVE., HARTFORD, CONN., and discover how relatively inexpensive such conversion can be.

Light for Fire-Fighting

579 When you speed a truck equipped with an Onan 25kw electric plant to the scene of a fire, you have 16kw to activate thirty-two 500-watt floodlights and 9kw in reserve for tools, blowers, and other lights and communications. One of these trucks can illuminate the whole side of a large building; they are available in both a.c. and d.c. models. For additional information, write D. W. ONAN & SONS INC., 2560A UNIVERSITY AVE. S.E., MINNEAPOLIS 14, MINN.

(See page 52 for more Bulletins)



With water to spare!

A community's water system must meet the health and happiness requirements of its citizens—both young and old.

No two municipal water systems are alike. That's why the Layne organization is first in the field—because more than 75 years of pioneering and leadership have provided on-the-job experience with municipal water problems of communities—large and small.

Layne offers complete water system services, from initial geological studies thru well drilling and pump installation to service and maintenance.

A complete staff of hydrologists, engineers, consultants, technicians and field crews are available for any phase of water system planning, installing and servicing. Layne services do not replace, but coordinate the services of consulting, plant or city engineers.

LAYNE & BOWLER, INC., **MEMPHIS**
GENERAL OFFICES AND FACTORY • MEMPHIS 8, TENN.
LAYNE ASSOCIATE COMPANIES THROUGHOUT THE WORLD

Layne

Water Wells • Vertical Turbine Pumps • Water Treatment

To: Layne & Bowler, Inc.
Memphis 8, Tenn.

Gentlemen: Please send me bulletin No. 100.

Name _____

Title _____

Organization _____

_____

Address _____

City _____ *State* _____

that's how quickly and easily collections are made with...
MI-CO's Coin Collection System

Coins do not drop into a funnel which could be blocked, but are guided into the cart unseen and untouched by collector.

No keys to turn. No coin receptacles to seal and unseal. No misplaced coin door keys.

Sliding coin door double locked and protected by stainless steel sheathing.

Registered Keyway—your guarantee that key blanks cannot be obtained from local locksmiths.

Stops meter pilfering because it's virtually impossible for anyone to steal coins from meters.

And it's adaptable to MI-CO Manual Parking Meters already installed.

MI-CO Manual Parking Meters are unusually rugged, quick and easy to service, usually at meter location. Maintenance expense is so low it's negligible. Meters may be set for any number of hours on various coin combinations. And *Split Timing* is also available. Furthermore, one slot takes all coins from a penny to a quarter. You have the assurance of long productive life and consistently high earnings.

Write for complete details on the MI-CO Manual, and the MI-CO Coin Collection System.

A Symbol of High Quality

M A B C

MI-CO PARKING METERS, P. O. BOX 668-AC, COVINGTON, KENTUCKY

(The Michaels Art Bronze Co., Inc.)

OTHER MICHAELS PRODUCTS: Architectural Metal • Curtain Walls
Display Cases • Reversible Windows • Tablets • Memorials • Signs

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Dependable Parking Meters

580 To budget-conscious municipal officials concerned with parking control, the Mark-Time twin meter offers economy in installation, low maintenance, and dependable performance. For descriptive literature on these soundly engineered manual parking meters, write M. H. RHODES, INC., HARTFORD, CONN.

Nonslamming Check Valves

581 Leakage, disalignment and serious damage in pump discharge lines can be caused by check-valve slamming. To guard against this, Ludlow and Rensaelaer *Last* 340 check valves have adjustable spring tension. For detailed information on these nonslamming units, write THE LUDLOW VALVE MFG. CO., INC., TROY, N. Y.

Open-Mesh, Nonclog Draingrates

582 "Dryway" catchbasin draingrates are 75% open to carry rain water off fast—even during heavy downpours. Their steel mesh construction is not subject to cracking; in fact, the units are self-maintaining and available in three designs—riveted, pressure-locked, RI-6. For your free draingrate catalog, write IRVING SUBWAY GRATING CO., INC., DEPT. E-55, 5056 27th ST., LONG ISLAND CITY 1, N. Y.

Controlled Digestion of Sewage Wastes

583 Operators of municipal sewage treatment plants will be interested in the special features of the P.F.T. digestion system. Whether for floating covers, heating, or gas recirculation for scum control, this system gives effective and complete control. For literature, write PACIFIC FLUSH TANK CO., 4241 RAVENSWOOD AVE., CHICAGO 13, ILL.

Protects Recreation Areas

584 Cyclone fencing and gates give municipal recreation areas the protection they deserve. In addition to discouraging vandalism, trespassers, thieves and other "gate crashers," these strong, sturdy units give years of low-maintenance and trouble-free service. For more information, write CYCLONE FENCE DEPT. UNITED STATES STEEL CORP., P. O. 260, WAUKEGAN, ILL.

Protects Water Supply Systems

585 In pipelines, reservoirs, wells, mains—wherever algae, bacteria, fungi and odors delight in thriving to the detriment of public health, HTH eliminates their threat. HTH contains 70% available chlorine and comes in granular and tablet form. For additional information, write OLIN MATHIESON CHEMICAL CORP., INDUSTRIAL CHEMICALS DIV., BALTIMORE 3, MD.

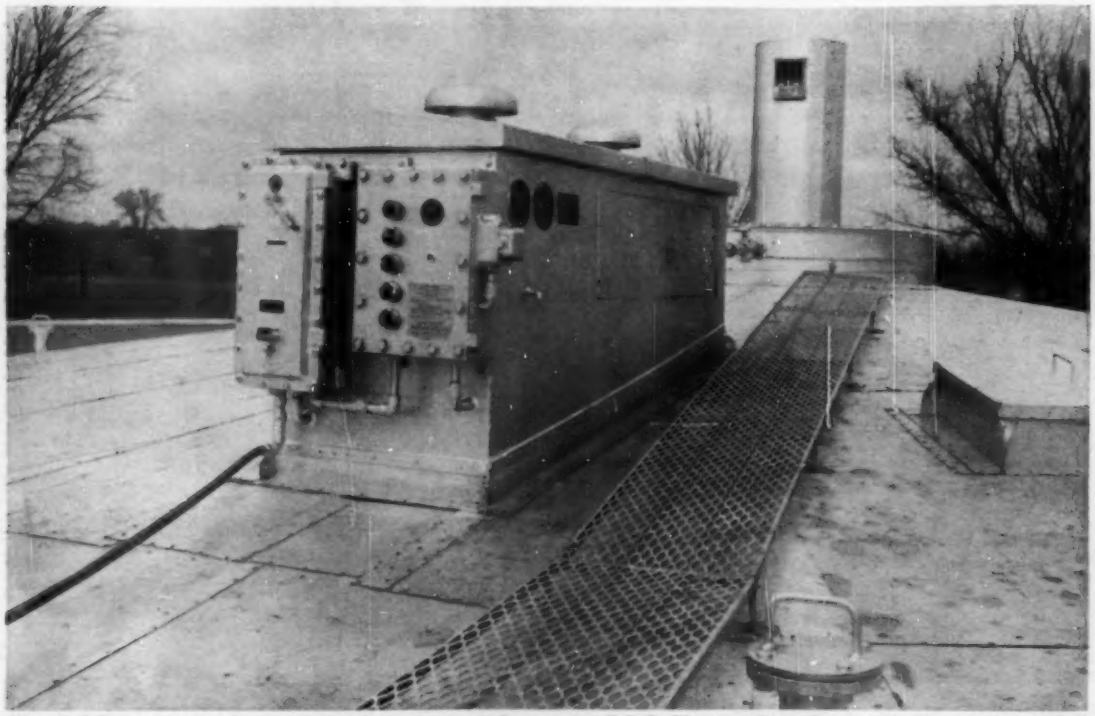
Street-Paving Simplified

586 Turn "hard-to-coat" aggregate—damp or dry—over to new Cationic Bitumuls. The result? No stripping in the screw, no drag under the screed. Just fast initial set, rapid cure even in deep placements, assured stability, almost immediate rolling and faster acceptance of traffic. Obtain complete information on this new binder from AMERICAN BITUMULS & ASPHALT COMPANY, 320 MARKET, SAN FRANCISCO 20, CALIF.

(See page 56 for more Bulletins)

Water Wells · Vertical Turbine Pumps · Water Treatment

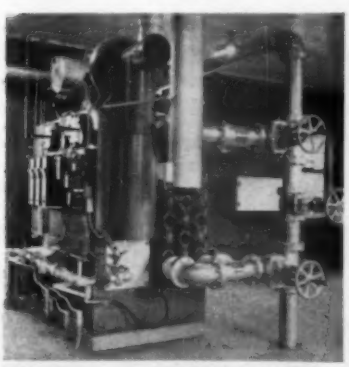
City _____ State _____



This P.F.T.-Pearth Gas Recirculation System mounted on a 70' P.F.T. Floating Cover is part of the new "controlled digestion" system just added to the Decatur, Illinois sewage treatment plant. Design of plant by Warren & Van Praag, Consulting Engineers, Decatur.

Decatur, Illinois installs complete modern P.F.T. "Controlled Digestion" system

Unusual industrial and population growth has called for the modernization and expansion of Decatur's sewage treament plant three times in recent years. Each time Decatur has selected P.F.T. equipment.



Decatur's new P.F.T. No. 750 Gas Fired Heater and Heat Exchanger, with accessory group B, controls, provides full automatic digester temperature control.

The P.F.T. equipment furnished for the most recent expansion is a new digestion system which includes: a 70' P.F.T. Floating Cover with prefabricated aluminum roofing; the P.F.T.-Pearth gas recirculation system and Model 750 Digestion Heater and Heat Exchanger shown; plus a complete new system of gas piping with P.F.T. gas safety equipment.

The P.F.T.-Pearth gas recirculation system includes a gas compressor rated to deliver 150 cfm at 10 psi powered with a 10 hp motor. Controls are provided to automatically discharge to each of 4 peripheral discharge wells in sequence.

The wells are equally spaced around the cover extending to a depth of approximately 10 feet below the liquid level in the tank. The compressor and low and high pressure bypass controls are mounted on the floating cover in an insulated housing.

P.F.T.-Pearth gas recirculation provides the most effective means of controlling scum formations. This allows the use of the full Digester capacity. Combined with close temperature control with a P.F.T. Heater, rapid and complete digestion is assured. Decatur's new "controlled digestion" system is now geared to meet the needs of this fast growing community.

Waste Treatment Equipment Exclusively since 1893

P.F.T.

PACIFIC FLUSH TANK CO.
4241 Ravenswood Avenue
Chicago 13, Illinois

PORT CHESTER, N. Y. • SAN MATEO, CALIF. • CHARLOTTE, N. C. • JACKSONVILLE • DENVER

Job Test a Worthington Today

The famous Worthington Model "F" Tractor mows the grass before the tractor wheels mat it down. Ideally suited to cutting on soft or wet turf. Front wheel drive and rear wheel steering makes the unit highly maneuverable.

The hill-hugging Worthington, Model "G" Tractor, equipped with a hydraulic sickle bar, makes short work of hard-to-get-at hillside mowing. Used widely by highway departments for tough job mowing.

There's a Mowing Combination for Every Large Area Requirement!

Whatever your large area mowing problem might be, there's a Worthington combination that's just right for the job. For maintaining velvet smooth turf on golf course fairways, cutting in restricted areas and around obstructions or on steep highway cuts and fills, Worthington will do it better . . . faster . . . cheaper.

Make us prove our claim! Job test Worthington units right on your tough cutting locations. See for yourself how easy they solve even the toughest mowing problems. Ask for a *"no obligation" demonstration* today! We'll be glad to arrange a demonstration of Worthington equipment on your own grounds at your convenience. Write for literature and the name of your Worthington dealer.

Excellent cutting efficiency and low maintenance cost makes these rugged Worthington Fairway Mowers the standard of comparison wherever a smooth, even-cut turf is required. Available in 3-, 5- and 7-gang units.

Gang mower capacity at power mower cost —that's what the Worthington Triplex offers. This versatile unit gives you everything from a putting-green type of mowing to three-gang cutting performance.

8-094

WORTHINGTON MOWER COMPANY

Subsidiary of Jacobsen Manufacturing Company, Racine, Wisconsin

STROUDSBURG, PENNSYLVANIA

The most complete line of large area grass maintenance equipment in the world!

To THE AMERICAN CITY's Catalog Supply Department

Please send me further information on products described in "Purchasing News" section beginning on page 243 as circled below:

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 2BI, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 FOURTH AVENUE
NEW YORK 16, N. Y.

DO YOU HAVE A WATER SUPPLY PROBLEM?

If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

To THE AMERICAN CITY's Catalog Supply Department:
Please send me literature on items numbered as follows, starting on page 32

508	520	532	544	556	568	580	592	604	616	628
509	521	533	545	557	569	581	593	605	617	629
510	522	534	546	558	570	582	594	606	618	630
511	523	535	547	559	571	583	595	607	619	631
512	524	536	548	560	572	584	596	608	620	632
513	525	537	549	561	573	585	597	609	621	633
514	526	538	550	652	574	586	598	610	622	634
515	527	539	551	563	575	587	599	611	623	635
516	528	540	552	564	576	588	600	612	624	636
517	529	541	553	565	577	589	601	613	625	637
518	530	542	554	566	578	590	602	614	626	638
519	531	543	555	567	579	591	603	615	627	639

I would also like to receive manufacturers' booklets on.....

.....

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Name: (Please Print).....

Title:.....

Address:.....

..... 4-58

A listing of Your Business Connection is Important

you save money **SEVEN WAYS**

To THE AMERICAN CITY's Catalog Supply Department

Please send me further information on products described in "Purchasing News" section beginning on page 243 as circled below:

741	746	751	756	761	766	771	776
742	747	752	757	762	767	772	777
743	748	753	758	763	768	773	778
744	749	754	759	764	769	774	779
745	750	755	760	765	770	775	780

I would also like to receive manufacturers' booklets on.....

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Name: (Please Print).....

Title:.....

Address:.....

..... 4-58

A listing of Your Business Connection is Important

IT'S NO ILLUSION

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.

Save time and effort by using these reply cards when you want additional information on any product or service mentioned or advertised in this issue.

you save money SEVEN WAYS with longer, stronger AMVIT Clay Pipe

Outstanding Mechanical Joint
on pipe 4 feet long or over
Available in 4" through 24" diameters

More than 200 major installations have been completed with outstanding results since Amvit Jointed Clay Pipe was introduced in 1955.

Such pioneer cities as Ann Arbor, Michigan, Dayton, Ohio, Camden, New Jersey have installed their second and third Amvit sanitary lines.

A mechanical joint designed for quick, low-cost installation, Amvit* will give you lower cost-in-place. Here's how:

1. QUICK INSTALLATION SAVES LABOR

No other materials such as caulking, joint compound, hot pots, or ladles are needed to make the Amvit joint. The joint is on the pipe delivered to the job ready for use. Just push the pipe together and the joint is complete.

2. IMMEDIATE BACKFILLING

You can backfill as soon as the line is completed. Barricades can be removed and streets opened days sooner.

3. QUICK TESTING

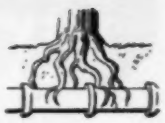
No need to wait days to see if a line has passed test. A look at the completed joint will tell. Thus, engineers can inspect and accept the line allowing the contractor to receive payment quicker.

4. CONTROLS INFILTRATION

Field tests from completed installations show that infiltration can be definitely controlled. Engineers can, thus, reduce infiltration specifications, use smaller diameter pipe and save in material cost.

5. ROOT PROOF

Amvit is a compression joint on the ball and socket principle. The surfaces of both bell and spigot are in uniform compression preventing root penetration.



6. BETTER FLOW, LESS MAINTENANCE

The design of the joint assures that the pipe is self-centered at all times. This gives perfect alignment and self-cleansing. Because the joint is really tight, no foreign matter such as dirt, sand and stones can possibly enter the line.

7. COMPLETE FITTINGS

Amvit is furnished on all standard fittings, as well as pipe. This will permit a uniformly tight line from house wall to treatment plant.

Amvit Jointed Clay Pipe, in sizes 4" through 24" together with all fittings is available for immediate delivery in the Northeast and Central States.

For more information on how Amvit can help cut your sewer project costs, write or call American Vitrified Products Company, National City Bank Building, Cleveland, Ohio, or our office nearest you.

SINCE 1900

AMERICAN

American Vitrified Products Company

CLEVELAND, OHIO

MANUFACTURERS OF: Clay Pipe, Flue Liners, Clay Liner Plates and Concrete Pipe.

*T. M. Registered. Patents Pending

Plants Across the Nation . . . Brazil, Indiana · Chicago, Illinois · Cleveland, Ohio · Crawfordsville, Indiana · Detroit, Michigan · East Liverpool, Ohio · Fenton, Michigan · Grand Ledge, Michigan · Lisbon, Ohio · Los Angeles, California · Milwaukee, Wisconsin · South Bend, Indiana · Uhrichsville, Ohio

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Corrosion-Free Swimming Pool Filters

587 Fiberglas Cryst-L-Clear vacuum-type pool filters, available in twelve sizes, are corrosion proof, simple to operate and adaptable to all installations. Compact and lightweight, they offer economical as well as visible operation. For full description, ask PROPORTIONEERS, INC., 345 HARRIS AVE., PROVIDENCE 1, R. I., for *Bulletin* No. 1860P1.

Machine of All Work

588 The Schramm Pneumatractor delivers 125 cfm of rated air for operating all kinds of pneumatic tools. When equipped with backhoe and front-end loader it becomes a versatile machine able to push, pull and power anything that can be handled by a wheeled tractor. For details write SCHRAMM, INC., 603 N. GARFIELD AVE., WEST CHESTER, PA.

Metering Instruments

589 Releases just received from BUILDERS-PROVIDENCE, INC., 358 HARRIS AVE., PROVIDENCE 1, R. I., are: *Technical Bulletins* 110-*P1* and 115-*L3C* on venturi meter tubes and Dall flow tubes, respectively; *Bulletin* 230P4, on Chronoflo Telemeters for remote metering and control; and *Sup. Bulletin* 380-*L3A*, on secondary instruments for making liquid flow meters more versatile.

HERE'S THAT STUMP REMOVER THEY'RE ALL TALKING ABOUT!

The New VERMEER POW-R-STUMP CUTTER

Now you can remove the largest stump, to a depth of 10" below the ground . . . in a fraction of the time required under present methods. The Vermeer POW-R-STUMP CUTTER is the new machine that's really doing the job in parks, golf courses, cemeteries and cities all over the country. You merely back the unit over the stump, as shown above, set the powerful rotor blade in position and then rip the unsightly stump to shreds.

POW-R-STUMP CUTTER REMOVES STUMPS IN MINUTES . . . NOT HOURS!

One man controls the entire cutting operation with three hydraulic cylinders. The Pow-R-Stump Cutter's 24 cutting blades move back and forth horizontally across the stump, ripping the stump one inch at a time.

From a stump to chips in minutes. Stump removed 10" below surface. Now you merely carry away the chips . . . add earth, seed or sod for a beautiful lawn.

Revolutionary • Safe • Simple • Economical

With the Pow-R-Stump Cutter in position over the stump, the operator then controls all cutting action . . . safely behind the mesh shield.

Powerful rotor blade (shown above) has already ripped half of the stump into chips. Saves hours of labor.

Write For Complete Information, Literature and Low-Price

You'll be amazed how many hours of back-breaking labor you can save with the POW-R-Stump Cutter. Quality-built and reasonably priced. Write for all facts now.

VERMEER MANUFACTURING CO., PELLA, IOWA

Concrete Testing Machines

590 A wide range of portable and laboratory machines for testing concrete cylinders, block, beams, etc. are discussed in a new bulletin from SOILTEST, INC., 4711 W. NORTH AVE., CHICAGO 39, ILL. Special emphasis is given the CT-711, a 200,000-pound capacity hand-operated portable tester designed for testing 6-inch x 12-inch cylinders.

Concrete Maintenance and Restoration

591 AIRPLACO offers a complete line of concrete gunning equipment — guns, mixers, sandblasters, grouters and placers—that will help the municipal public works official effectively maintain or restore concrete structures in his city. For a free illustrated catalog, write AIR PLACEMENT EQUIPMENT COMPANY, 1005A W. 24th ST. KANSAS CITY 8, MO.

Computes and Writes Taxes and Payroll

592 Latest municipal accounting machines aim at time and work saving in the special fields of tax and water billing and payroll preparation. If you want a machine that types as well as computes just say Sensimatic to BURROUGHS CORPORATION, DETROIT 32, MICH.

Water Service Tapping Made Easy

593 Fatigue and backache are eliminated and service connection work speeded up when a Lawco Jr. portable pipe threader electrically operates tapping machines. Capable of threading from ⅛-inch to 6-inch pipe, this 20-pound machine also digs holes and works as a hoist. For details, and to mechanize your service taps, write VELOCITY POWER TOOL COMPANY, 201 NORTH BRADDOCK AVE., PITTSBURGH 8, PA.

Street Lighting Brackets for Fluorescent Luminaires

594 The new galvanized street lighting brackets designed by Hubbard especially for fluorescent luminaires provide increased support, withstand 100 mile per hour wind velocities, and eliminate "dancing" of the luminaire under strong winds. They are fully characterized in *Bulletin* No. P-1057; for your copy, write HUBBARD AND COMPANY, PITTSBURGH 1, PA.

New Booklets on Crawler Tractors

595 INTERNATIONAL HARVESTER CO., 180 N. MICHIGAN AVE., CHICAGO 1, ILL., has just released three descriptive booklets. *Forms CR-635-H* and *CR-627-H* detail the International TD-14 and TD-9 crawler tractors, respectively, with 4-in-1 Drott Skid Shovel; *Form* CR-608-H explains the Drott 4-in-1 attachment for TD-9, TD-14 and TD-18 crawler tractors as a basic tool for sanitary landfill operations.

Refuse Disposal by Incineration

596 A new bulletin from INTERNATIONAL INCINERATORS, INC., WALTON BLDG., ATLANTA 3, GA., lists ten basic requirements for proper refuse destruction and then notes how International incinerators meet these requirements at low operating cost, with minimum maintenance and maximum waste heat utilization and with efficient fly ash control.

(See page 58 for more Bulletins)

Catalogs for You

Control Panels for Rapid Sand Filters

Product Specification G71-8 describes

Two Sets of Records in Three Minutes

Take a legal-sized document; team

Use American Meters with sealed plastic register box for pit installation.

METER DEPARTMENT FOREMAN

Boss of Installation and Maintenance

He says, "Dependable American Meters require so little attention, that we have more time for the efficient maintenance of other equipment."

He bases his statement on experience. He has found that American Meters are simplest in design and construction. The interior parts are rugged and have proper clearances that resist failure caused by small amounts of foreign material in the water. Precision manufacture assures that all parts — even chamber halves — are fully interchangeable, to simplify parts stocks and reduce maintenance costs.

He doesn't want his meter department bogged down with meter repairs . . . that's why he recommends American!

BUFFALO METER CO.

2902 Main Street • Buffalo 14, New York

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Front-End Loaders for City Trucks

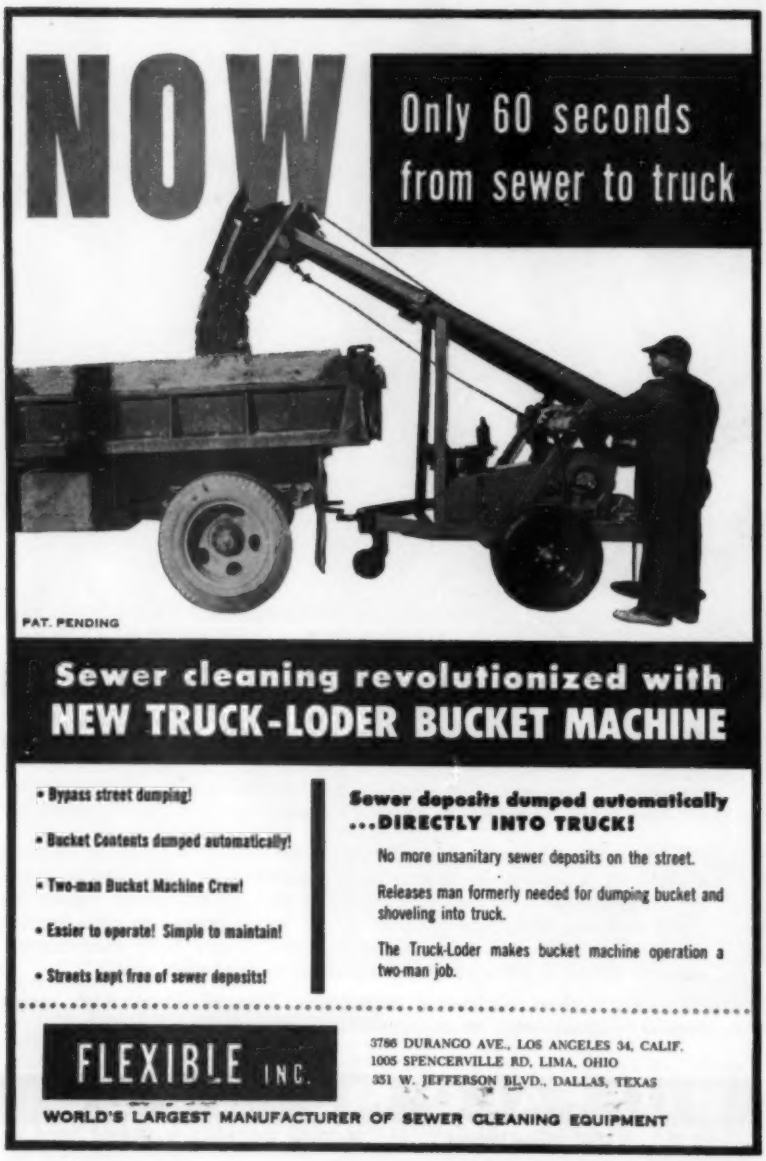
597 Broader use of the Holmes-Owen truck loader is now possible. Increased "elbow action" permits bucket loading from a standstill. When equipped with forward-tipping bucket, it can dig, grade, load and haul independently, or load other trucks. With claw-type bucket, it effectively picks up loose materials. For complete information, write ERNEST HOLMES CO., CHATTANOOGA 7, TENN.

Control Panels for Rapid Sand Filters

598 *Product Specification G71-8* describes and illustrates three desk-type control panels used in water treatment plants for operation of rapid sand filters. Sturdily built, they have been designed with inclined top surfaces for optimum readability. For complete information, write BAILEY METER CO., 1050 IVANHOE RD., CLEVELAND 10, OHIO.

Water-Sewer Aerators

599 Interested in supplying air for the aeration of water and sewage? Then you'll appreciate the economy and efficiency of R-C rotary positive blowers. A complete description of these dependable blowers is contained in literature from ROOTS-CONNERSVILLE BLOWER, DIV. of DRESSER INDUSTRIES, INC., CONNERSVILLE, IND.


NOW
Only 60 seconds from sewer to truck
PAT. PENDING
Sewer cleaning revolutionized with
NEW TRUCK-LODER BUCKET MACHINE
• Bypass street dumping!
• Bucket Contents dumped automatically!
• Two-man Bucket Machine Crew!
• Easier to operate! Simple to maintain!
• Streets kept free of sewer deposits!
Sewer deposits dumped automatically ...DIRECTLY INTO TRUCK!
No more unsanitary sewer deposits on the street.
Releases man formerly needed for dumping bucket and shoveling into truck.
The Truck-Loder makes bucket machine operation a two-man job.
FLEXIBLE INC.
3786 DURANGO AVE., LOS ANGELES 34, CALIF.
1005 SPENCERVILLE RD, LIMA, OHIO
351 W. JEFFERSON BLVD., DALLAS, TEXAS
WORLD'S LARGEST MANUFACTURER OF SEWER CLEANING EQUIPMENT

Two Sets of Records in Three Minutes

600 Take a legal-sized document; team it with a Kodak Verifax Copier and a Recordak Junior Microfilmer: in three minutes, and for just 24 cents, you will have (1) an easy-to-read positive record copy, (2) a microfilm security copy, which can be filed for quick reference or stored in a low-cost security area. Get details on how this team can increase office efficiency from RECORDAK CORPORATION, DEPT. Y-3, 415 MADISON AVE., NEW YORK 17, N. Y.

Sprayer-Dusters for Pest and Weed Control

601 Those responsible for pest and weed control programs and shade tree care will welcome the new descriptive catalog on Buffalo Turbine sprayer-dusters. Each sprayer-duster model is unique, yet each is powerful, efficient and versatile in application. This new literature is obtainable from BUFFALO TURBINE AGRICULTURAL EQUIPMENT CO., INC., GOWANDA, N.Y.

Traffic Line Markers

602 New literature is available from the M-B CORPORATION, NEW HOLSTEIN, WIS., on its Model 6-18, ideal for traffic stripings 2 to 6 inches in width in crowded metropolitan areas, and on its Model Super 10, able to lay one, two or three lines 3 inches to 6 inches in width in one or two colors.

High-Speed Drilling Through Reinforced Concrete

603 Your street mud-jack crews can cut through reinforced concrete fast and clean with a portable high-speed Truco Diamond Drilling Machine. Toughest aggregates become "clay" under Truco Diamond Drill Bits and powerful motors. You also have no trouble boring access holes through concrete foundations and retaining walls. Write for full details to TRUCO SWIVEL DIVISION, WHEEL TRUEING TOOL CO., 28-3200 W. DAVISON AVE., DETROIT 38, MICH.

Improved Municipal Filing System

604 ACME VISIBLE RECORDS, INC. has geared its filing systems and equipment to meet the real need for fast, quick-reference filing of punched cards and tapes produced by high-speed electronic data processing machines. To learn how the Acme system can complete your office modernization program, write the company, DEPT. F-458, CROZET, VA.

Relay for Street and Traffic Lights

605 There is no sticking of contacts with the Little Giant, a 75-ampere compact mercury-to-mercury relay that turns street lights on and off, operates traffic signals and turns lights on and off in municipal parking lots. For specific data on this and other relays with municipal applications, write THE ADAMS & WESTLAKE CO., ELKHART, IND.

Picnic Tables

606 Park and recreation officials will be interested in the inexpensive Tak-A-Part picnic tables offered by MIDWEST METAL STAMPING CO., KELLOG, IA. Built for heavy duty and weather resistance, they feature walk-in seats and slide-easy skid type feet, and can seat from 8 to 14 persons. End frames and braces are of sturdy welded steel tubing.

(See page 60 for more Bulletins)

It takes just two steps to assemble the FLUID-TITE Coupling. Lubricate the tapered edge of the gasket. Then slide in the pipe.

Major Advance in Waterworks Industry. K&M's exclusive FLUID-TITE Coupling provides permanent, water-tight, root-tight connections. Allows deflection of up to 5°. Assembled in any weather.

SLIDE IT IN QUICK... IN 2 EASY STEPS

IT'S "K&M" ASBESTOS-CEMENT PRESSURE PIPE WITH EASY-TO-INSTALL FLUID-TITE COUPLING

Installation is fast and economical! It doesn't require skilled labor, heavy machinery, or heavyweight coupling pullers. Install it in any weather.

The seal grows tighter as the pressure climbs! Coupling rings expand as water mains fill. Rings have holes on one side for self-energizing action.

It's practically indestructible! "K&M" Asbestos-Cement Pressure Pipe is non-tuberculating, non-electrolytic, and corrosion-resistant. Its first cost is often the last cost. Pressure remains normal—pumping costs stay low.

Visit our booth Nos. 52, 53—AWWA Convention, Dallas Memorial Auditorium, April 20-25.

K·M
BEST IN ASBESTOS

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

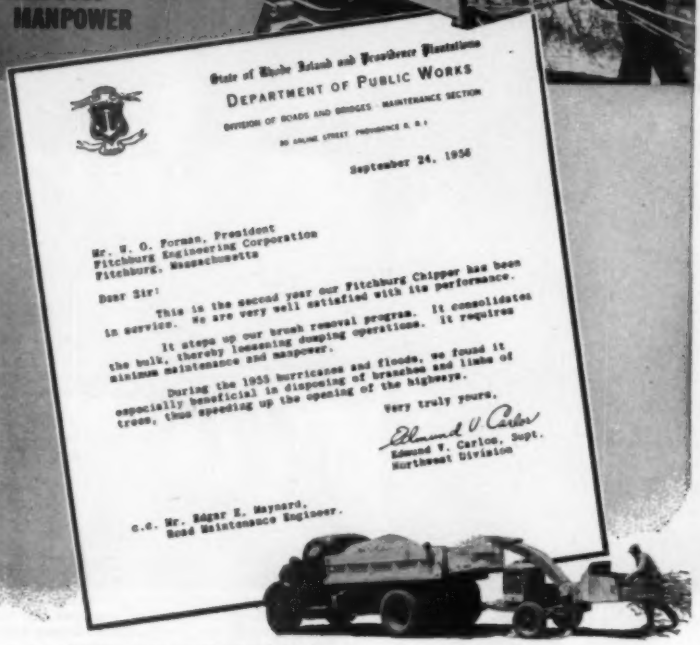
FITCHBURG CHIPPER STEPS UP
Rhode Island Brush Removal

...CONSOLIDATES THE BULK

...LESSENS DUMPING OPERATIONS

...REQUIRES MINIMUM MAINTENANCE

...REDUCES MANPOWER



State of Rhode Island and Providence Plantations
DEPARTMENT OF PUBLIC WORKS
DIVISION OF ROADS AND BRIDGES - MAINTENANCE SECTION
80 ONLINE STREET, PROVIDENCE 6, R. I.

September 24, 1956

Mr. U. O. Forman, President
Fitchburg Engineering Corporation
Fitchburg, Massachusetts

Dear Sir:

This is the second year our Fitchburg Chipper has been in service. We are very well satisfied with its performance.

It steps up our brush removal program. It consolidates the bulk, thereby lessening dumping operations. It requires minimum maintenance and manpower.

During the 1955 hurricanes and floods, we found it especially beneficial in disposing of branches and limbs of trees, thus speeding up the opening of the highways.

Very truly yours,

Edmund V. Carlos

Edmund V. Carlos, Supt.
Northeast Division

c.c. Mr. Edgar E. Maynard,
Road Maintenance Engineer.

Brush disposal cost can be reduced.

Your City will find that the Fitchburg Wood Chipper is money-saving equipment in your Highway or Park Departments. Tree trimmings are quickly reduced into load-saving wood chips. Fewer loads cuts your loading and hauling expenses. Brush removal becomes a faster, simpler, less expensive operation.

Fitchburg Wood Chippers are engineered to stand hard use, to give long service without excessive maintenance costs. There is only one Wood Chipper on the market today with a One Year Guarantee... The Fitchburg Wood Chipper.

Send for a copy of "Chip Dollars From Your Overhead."

NEW FREE BOOK
"Chip Dollars From Your Overhead"
Complete with cutaway color drawings of Chipper in action. Specifications, etc.

FITCHBURG ENGINEERING CORPORATION
Fitchburg, Massachusetts, Dept. AC-48

Send my free copy of "Chip Dollars From Your Overhead" to:

Name _____

_____
(Position or Company)

Address _____

City _____ State _____

FITCHBURG ENGINEERING CORPORATION
FITCHBURG, MASSACHUSETTS

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Gate Valves by Appointment to the Water Works Industry

607 Whether hydraulic or motor-operated, whether used in filter gallery or high lift pump station, gate valves fashioned by IOWA VALVE COMPANY, OSKALOOSA, IA., meet the exacting demands and specifications of water works men throughout the country. For details, and for literature on Iowa fire hydrants and accessories, write to the company.

Brushes for Street Sweepers and Gutter Brooms

608 A wide choice of heavily-filled, longer-wearing brooms of flat steel wire, palmyra stalks, african bass, or split hickory is available from FLO-PAC FIBRES, INC., 1501 4th AVE. S., MINNEAOLIS 4, MINN. For these brooms of better sweeping quality, write for *Catalog* No. 210.

Light-Weight, Versatile Power Saw

609 The Wright "Rebel" is a 25-pound reciprocating blade gas-powered saw that is versatile in application and ideal for use by utility service crews. Its 20-inch blade cuts smoothly and with precision. Get full details from WRIGHT POWER SAW AND TOOL CORP., DIVISION OF THOMAS INDUSTRIES, INC., 410 S. THIRD ST., LOUIVILLE 2, KY.

Automatic Control of Off-Street Parking

610 Various control plans for off-street parking lots are available to municipalities from WESTERN INDUSTRIES, INC., 2430 S. ASHLAND AVE., CHICAGO 8, ILL. For operations involving hourly rate and validation parking, there is "Parkontrol" Time-Dater-Imprinter Equipment; for lots operated on a flat fee basis, key, electro-card, coin and token operated gate. For the application most suited to your needs, write the company.

Stops Rust—Sample Free

611 Stop rust on water tanks, fences, sewage-treatment equipment and other metal units with Rust-Oleum 769 Damp-Proof Red Primer. All you do is scrape and wire-brush the equipment—then coat right over the sound rusted metal. The primer offers double protection and lasting beauty. For a free test sample and literature, write RUST-OLEUM CORP., 2688 OAKTON ST., EVANSTON, ILL.

Safety Jackets and Crewmen

612 Excellent on-the-job protection is assured utility, construction, maintenance and road crews by Plastimayd safety jackets. Fabricated from tough Bakelite "Krene", they generally offer 9,600-volt dielectric resistance, and as high as 16,000. Their Super-Weld seams, high degree of waterproofing, cold weather flexibility and yellow color guarantee all-around foul weather protection. And they can be easily laundered. To obtain full details, write for *Bulletin AC-Y* to PLASTIMAYD PRODUCTS CORPORATION, PORTLAND 14, ORE.

(See page 64 for more Bulletins)

NEW WORK BULL and DAVIS

PRESENTING FOUR NEW INDUSTRIAL CHAMPIONS

BY

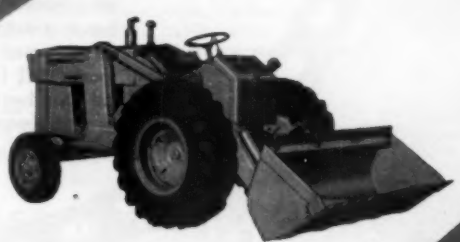
MASSEY-FERGUSON INDUSTRIAL EQUIPMENT

WORK BULL and DAVIS PRODUCTS

The Work Bull 303 with 500 Loader and Davis Backhoe

The Work Bull 202 with Matched Davis Loader and Backhoe

SEE HOW THESE VERSATILE POWER-MATCHED MACHINES SAVE ON MANPOWER AND EQUIPMENT EXPENDITURES



The Work Bull 1001 Multi-Purpose Tractor Loader

The Work Bull Fork Lift

MASSEY-HARRIS-FERGUSON, INC.

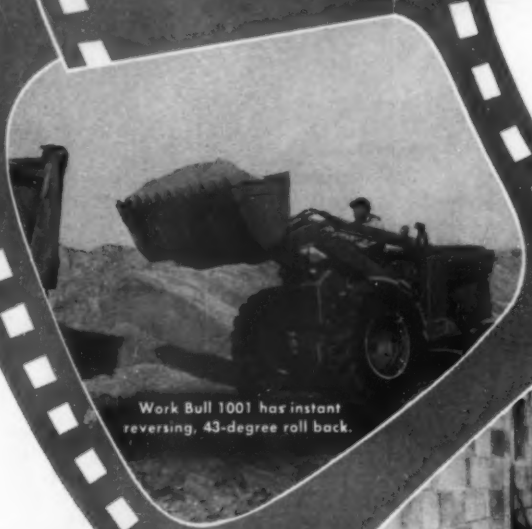
MASSEY-FERGUSON INDUSTRIAL DIVISION

1009 SOUTH WEST ST. • WICHITA 13N, KANSAS

NEW WORK BULL and DAVIS

Integration of Work Bull 202 and Davis Loader gives greater reach, maneuverability, and "single-unit" efficiency.

Here's Massey-Ferguson Industrial Division's new line of industrial champions in the light and medium equipment field. All are designed to replace high-inventory, single-purpose machines — and at a fraction of the cost. Multiple, quick-change attachments are POWER-MATCHED to the basic tractor. You pick the power you need — and add the attachments you want. All from the same source. It will be the best investment you ever made in equipment!



Work Bull 1001 has instant reversing, 43-degree roll back.

Davis Backhoe digs flush or from center.

The Work Bull 500 Loader and 303 has telescopic reach.

LETS YOU PICK YOUR POWER TO MATCH YOUR PROJECT!

New WORK BULL 1001

Multi-Purpose Tractor Loader is convertible into eight different machines. You can change it in the field from a loader (⅞ cubic yard payload capacity) to a pick-up street sweeper, to a fork lift, angle dozer, crane, rotary broom, backhoe, or scarifier. This unit features 52 h. p. engine, instant reversing (without shifting), 43° bucket roll back at ground level, load-shock absorber, power steering, and torque converter.

New WORK BULL 202

Utility Industrial Tractor has 40 h. p., high-torque engine with amazing lugging power at low speeds. New industrial design permits extra maneuverability, vision, and control. It has more POWER-MATCHED attachments than any other tractor. Attachments include the famous Davis Loader-Backhoe and the Auburn Trencher. It beats anything in its price range.

New WORK BULL 303

Medium Range Industrial Tractor is designed for tough assignments that demand more power, more weight, and reserve stamina. It has 52 h. p. engine, instant reversing, torque converter, power steering, and new double-disc brakes.

De

New WORK BULL 500 LOADER

Work Bull 500 Loader with ¾ cubic yard payload capacity is specially matched to the Work Bull 303. It has direct line "bull-dozer" type thrust, but telescopic reach. Extra versatility is provided by pick-up street sweeper, crane, angle dozer, rotary broom, fork lift, and scarifier attachments. Davis Backhoe also fits directly to the loader frame.

New WORK BULL FORK LIFT

Work Bull Fork Lift has the power, stability, and flotation to be labeled the best material-handling device for either off or on hard surfaces. Controls are located at operator's finger-tips. It is equipped so you can make quick changeover from one attachment to the other without additional hydraulics. Attachments include standard tines, block forks with side-shift adjustment, hydraulic bucket, log hook, dozer blade, scrap grap, 20′ extension mast, bottled gas load clamp, and cotton bale clamp.

Matched DAVIS LOADER-BACKHOE

Davis Loader-Backhoe — The famous Davis Loader and Backhoe are specially matched to Work Bull 202. Loader attaches directly to the tractor which also has built-in pump drive and mounting. The Davis Backhoe fits directly to loader frame and can be attached or detached in less than five minutes. It is the only machine that can dig flush alongside a building — as well as do normal digging jobs. The Davis Loader, likewise, is highly versatile with many easy-to-change attachments.

Other

Power-Matched Attachments for the Work Bull 202 and 303 tractors include a scarifier-scraper, post hole digger, mower, multi-purpose rear blade, soil scoop, cable layer, tipping trailer, cordwood saw, and telescoping wagon chasis.

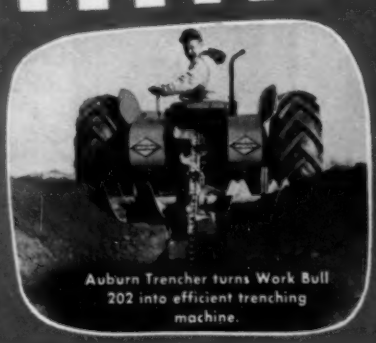
Get the Full Story On How To Save Manpower and Equipment Expenditures
Write for this free copy of the 28-page, fully illustrated brochure on the complete Work Bull and Davis Line. Ask for Brochure G-4.

MASSEY-HARRIS-FERGUSON, INC.

MASSEY-FERGUSON INDUSTRIAL DIVISION
1009 SOUTH WEST ST. • WICHITA 13N, KANSAS

Work Bull Fork Lift with Block Tines and Side Shift adjustment.

Work Bull 1001 easily converts into pick-up sweeper.



Auburn Trencher turns Work Bull 202 into efficient trenching machine.

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Speeds Brush Chipping

613 There are no brush-disposal headaches when a fast, efficient Fitchburg chipper is on the job. Precision tooled to give trouble-free service, the unit automatically adjusts to accommodate any size brush up to its rated capacity. *Chip Dollars From Your Overhead* explains all phases of brush disposal with these units. Write THE FITCHBURG ENGINEERING CORP., AC-48, FITCHBURG, MASS., for your copy.

New, High-Speed Slurry Pump

614 Capacities and applications of a new medium-range high-speed slurry pump are discussed in *Bulletin* 188 from MORRIS MACHINE WORKS, BALDWINSVILLE, N. Y. Known as Type BA, the unit features a renewable suction liner and semi-open impeller. It comes in cast iron, Ni-hard or stainless steel. For your copy of the bulletin, write the company.

Keep City Work Crews on the Job

615 With Igloo water coolers. These efficient containers are "crystalined" to keep water pure. They have round, sanitary bottoms that are easy to clean, and recessed, dripless spigots. Get full details from IGLOO CORP., P. O. BOX 8227, MEMPHIS 4, TENN.

Small City Sewage Treatment Complete in One Tank

616 *Bulletin* 7315 announces the Comple-Treater, designed to provide complete sewage treatment in a single tank using the Biofiltration process. Where normal domestic sewage is handled at an average daily capacity of about 13,300 gallons treatment efficiency of 90% BOD and removal of suspended solids is claimed. For *Bulletin* 7315, write DORR-OLIVER INC., BARRY PLACE, STAMFORD, CONN.

Street Lighting Luminaires

617 Two new bulletins on street lighting luminaries are available from LINE MATERIAL INDUSTRIES, McGRAW-EDISON CO., MILWAUKEE 1, WIS. *Bulletin SL1* gives description, photometric data, catalog numbers and prices on LINE 3 incandescent luminaries; *Bulletin SL6* describes and illustrates deep-globe, shallow-globe, floodlight, delta and vee fluorescent luminaires.

New, Large-Capacity Tractor Shovel

618 The Trojan Model 404—newest and largest YALE & TOWNE MFG. CO. tractor shovel—is a 4-cubic yard machine that delivers tremendous yardage with minimum effort. Powered by a GM series 6-71 diesel, this power-packed front-end loader features reverse curve safety arms, independent bucket action and four-wheel air brakes. For additional information, write the company's CONTRACTORS MACHINERY DIV., BATAVIA, N. Y.

Money Saving Bituminous Distributor

619 Municipal street departments are offered an all-purpose distributor designed to heat and apply bituminous material at low cost. Called the Thriftline, it is a practical, easy-to-operate piece of machinery with an "easy-flo" piping system, high operator platform and fireproof burner boxes. For a copy of *Catalog T-100*, write MUNICIPAL SUPPLY CO., DEPT. T, 2508 MAIN ST., SOUTH BEND 23, IND.

Instrument Repair Service

620 It is now possible to get fast, efficient factory repair of your Leeds & Northrup instruments, for the company has established such a service to handle the repair of inoperative, mechanical and electrical instruments as well as those damaged by fire and flood. *Folder EN* (6) contains details on this 4-way service; write to LEEDS & NORTHRUP, 4934 STENTON AVE., PHILADELPHIA 44, PA.

Coal Tar Coating in Handy Roll Form

621 TAPECOAT coal tar coating resists severe abrasive and corrosive action so well, city engineers include it in preventive maintenance programs for use on pipes, fittings, joints, conduits. The self-bonding tape—simply apply with a torch—comes in rolls of 2-, 3-, 4-, 6-, 18- and 24-inch widths. Write THE TAPECOAT COMPANY, 1541 LYONS ST., EVANSTON, ILL.

Plywood Information

622 The 1958 DOUGLAS FIR PLYWOOD ASSOCIATION catalog is divided into three sections: (1) general information on plywood needed in the construction and design field; (2) fir plywood for product design, and (3) specialty products. Each unit is planned for quick reference, with concise tables and illustrations. For a copy, write to the Association at TACOMA 2, WASH.

(See page 66 for more Bulletins)

BERMUDA HOTEL TAPS SALTY ATLANTIC FOR FRESH WATER

Bermuda's Castle Harbour Hotel recently installed a Maxim Sea Water Distillation Unit and thereby eliminated the need to import (at high cost) several million gallons of fresh water annually. Now the hotel can tap the inexhaustible Atlantic to replenish fresh water supplies.

Castle Harbour's Maxim unit is converting sea water into pure, fresh water continuously at a rate up to 20,000 gallons daily. It is doing this so inexpensively that General Manager Howard F. Hohl estimates the unit "will easily pay for itself in three years."

Purity of fresh water delivered by Maxim unit exceeds U.S. Public Health Service requirements.

IF YOU HAVE A FRESH WATER SUPPLY PROBLEM, and are near sea water, you should talk to Maxim. Our Sea Water Distillation Units can be made in virtually unlimited capacities, for industrial as well as human use. Our engineers will be glad to discuss your requirements.

THE MAXIM SILENCER COMPANY

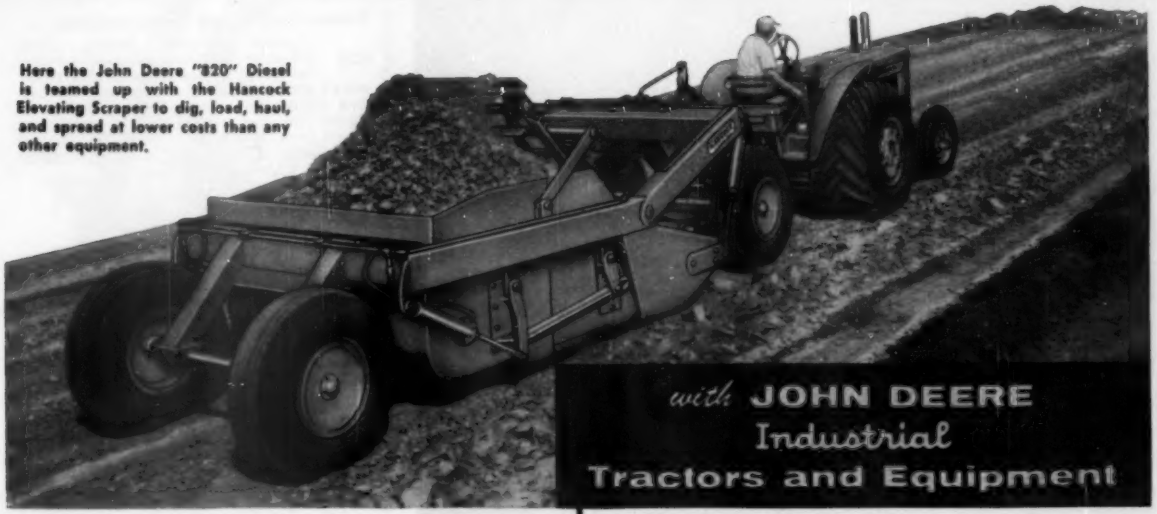
Subsidiary of Emhart Manufacturing Company

103 HOMESTEAD AVENUE • HARTFORD, CONNECTICUT

ELECTRIC PLANT

Catalogs for You

Keep Schedules Up to Date and Costs Down to Earth...



Here the John Deere "820" Diesel is teamed up with the Hancock Elevating Scraper to dig, load, haul, and spread at lower costs than any other equipment.

with JOHN DEERE Industrial Tractors and Equipment

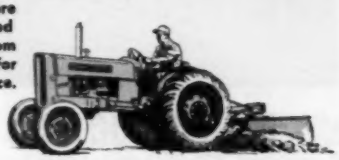
NOWADAYS public administrators and their contractors avoid expensive schedule bogdowns by using John Deere Tractors and matching equipment to carry the load on public works projects of all types.

Men close to jobs involving clearing, excavating, trenching, grading, paving, earth moving—and many other construction and maintenance operations—know that John Deere Tractors deliver needed power at lower cost. They know that these tractors have a greater "stay-ability" than power units calling for much more in the way of initial price and upkeep costs. What's more, these men know that there are John Deere "bonuses" in the easy operation, easy servicing, and versatility.

Your John Deere Industrial Dealer will be glad to show you the complete line of John Deere Tractors—wheel and crawler—and matched equipment.

New "440" Wheel and Crawler Tractors

The new John Deere "440" is a husky, rugged tractor, designed from grille to drawbar for long, dependable service.



The "420" Crawler and Wheel Tractors

Long famous for doing so much for so little cost, the "420" is shown here bossing a trenching operation.

There's a Model to Match Your Needs

Available in just the model to suit your needs, John Deere Industrial Tractors boast many optional features such as power steering on wheel models and new clutch-type direction reverser on "420" and "440" Wheel and Crawler Tractors.

JOHN DEERE Industrial Tractors and Equipment

Completely Engineered for Industry

SEND FOR FREE LITERATURE

JOHN DEERE—INDUSTRIAL DIVISION

MOLINE, ILLINOIS • DEPT. D-49-G

Please send literature on: ☐ "820" Diesel, ☐ "440" Crawler, ☐ "440" Wheel, ☐ "420" Crawler, ☐ "420" Wheel.

Name_____

Address_____

Town_____ State_____

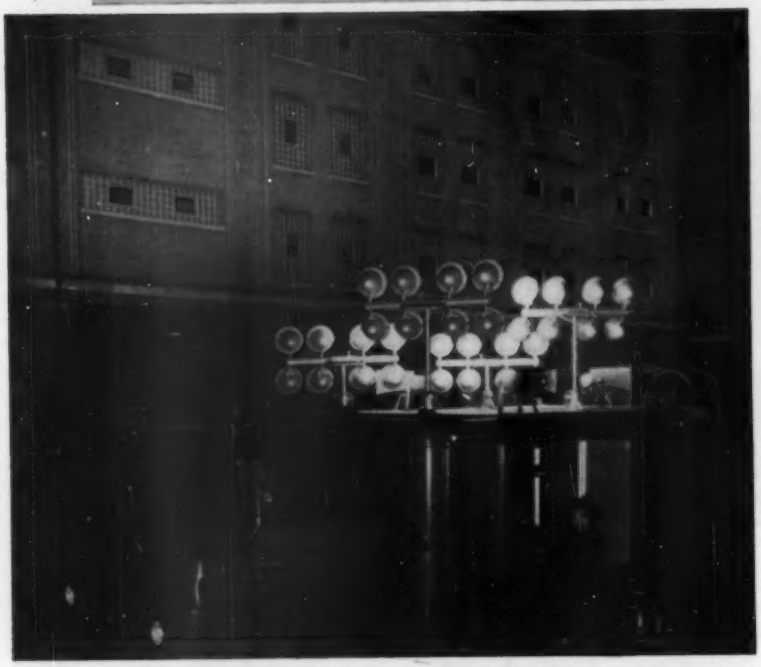
Before you buy any tractor equipment...

Check Case® TerraTrac®

Onan ELECTRIC PLANTS

ELECTRIC PLANT NEWS

Onan ELECTRIC PLANTS



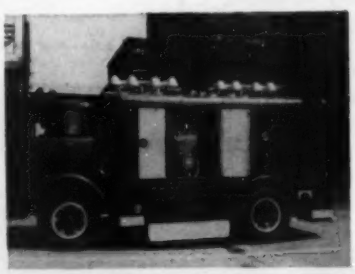
New 1,000,000 candlepower trucks equipped with Onan Electric Plants

25KW Onan units power battery of floodlights for fire fighting; provide current for auxiliary equipment, too

The Chicago fire department recently put three of these new-type lighting apparatus trucks into service, each of which has an assembly of thirty-two 500-watt floodlights. Just one of these trucks can illuminate the whole side of a large building. Floodlights are mounted on a special metal superstructure which can be adjusted to any vertical or horizontal angle. The entire assembly folds flat.

Each truck is equipped with an Onan 25KW plant housed within the truck body. It supplies 16KW for floodlighting with 9 KW in reserve for tools, blowers, other lights and communications.

Onan also builds lightweight electric plants which can be carried right up to the fire site; rig-mounted, quickly-demountable units; mobile electric plants for truck or trailer mounting; and emergency electric plants for standby use.



Onan Model 25EC-4R8 shown through open doors of truck, provides ample power, is easily accessible. Note how lighting superstructure folds flat when not in use. Lamps face down for protection. Truck also carries electric tools, reel of cable and other fire fighting equipment.

A. C. Models: 500 to 75,000 watts; also D. C. and Battery charging units.

See your Onan distributor or write for literature

D. W. ONAN & SONS INC.

2560A University Ave. S.E., Minneapolis 14, Minnesota

ELECTRIC PLANTS • AIR-COOLED ENGINES • KAB KOOLER • GENERATORS

Onan ELECTRIC PLANTS

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Street and Road Maintenance

623 Whether patching, sealing, crack filling or surfacing secondary roads, the Model S-J maintenance distributor works efficiently and economically. It handles asphalt or tar equally well and is designed for use where bigger equipment would prove costly or impractical. For details, write STANDARD STEEL WORKS, INC., N. KANSAS CITY, MO.

Adds Bounce, Softens Bumps at Play Areas

624 Park and recreation officials can now increase the safety factor at playgrounds by specifying Saf-Pla, a recently developed durable rubberized surfacing material applicable to blacktop, concrete or smooth penetration surfaces. For more about this resilient and protective low-cost covering, write U. S. RUBBER RECLAIMING CO., INC., BOX 365, BUFFALO 5, N. Y.

Liquid Level Controls

625 Water and sewage plant operators will be interested in the new line of CHARLES F. WARRICK CO. two- and three-pole floatless electrode-type liquid level controls for use in conductive liquids with resistance up to 20,000 ohms. Detailed information may be obtained from WOODWARD WARRICK, SALES MGR., DEPT. A. C., 1964 W. ELEVEN MILE ROAD, BERKLEY, MICH. *Ask for Form No. 25.*

How Water and Sewer Mains Are Cleaned

626 "We **Have Come A Long Way**" is a 30-minute educational and training film, in sound and color, showing the methods and equipment used in cleaning water and sewer mains from earliest days to the present. The 16mm film is available for viewing by public officials. Write FLEXIBLE, INC., 3786 DURANGO AVE., LOS ANGELES 34, CALIF.

Road Surfacing with Tar Products

627 KOPPERS COMPANY, INC., TAR PRODUCTS DIVISION, PITTSBURGH 19, PA. has released four 4-page briefs on road surfacing with Tarmac. They are: (1) Hot-Lay Tar Concrete; (2) Double Surface Treatment; (3) Tar Prime; (4) Tar Road Mix. Characteristics and construction steps are outlined for each surfacing technique.

Modern Outdoor Lighting

628 When considering improved outdoor lighting for your community, consult LINE MATERIAL INDUSTRIES, MILWAUKEE 1, WIS. This company offers application engineering help to municipalties, utilities, consultants and subdividers, and provides a complete line of highly styled lighting units—incandescent, mercury vapor, fluorescent.

Dependable Hazard Warnings

629 Dependability, rugged construction and the assured visibility of FLASHER safety lights and barricades recommend them to any situation where hazard warnings are essential. *Catalog LL-68-7* gives full description and specifications of these units. For your copy, write R. D. FAGEOL CO., DEPT. AC, KENT, OHIO.

(See page 68 for more Bulletins)

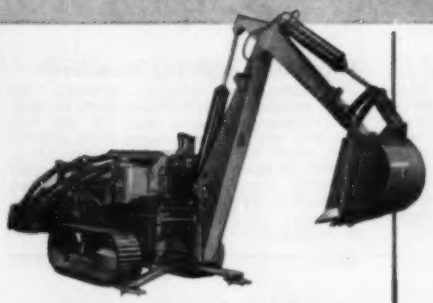
Before you buy any tractor equipment...

Check Case® TerraTrac®

PRICE AND PERFORMANCE!

Crawler-mounted loaders

Five sizes — ½ to 2-cu yd. — with exclusive "knock-out" dumping action, plus improved bucket rollback. Extra-high dump clearance simplifies loading high trucks and hoppers.



Crawler-mounted backhoes

Exceptional power and stability for tough digging in hard ground, steep grades, etc. Digs 12½' below grade. Available with various dipper sizes and optional front-end loader or dozer.

Crawler fork lift

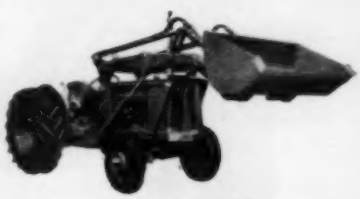
Keeps jobs moving in any weather or terrain. Unloads trucks... carries, lifts materials to 21'4" height. Mounts quick-change loader, dozer, concrete bucket, log-grab, or crane hook.

Four-wheel-drive Terraload'r

Digs more, carries more, dumps faster than any other loader in its class. Unmatched breakout, stability, and operator safety. Rear-wheel power-steer... 1¼ to 2¾-cu. yd. bucket.

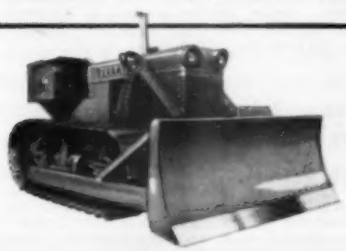
Wheel-type backhoes

Lowest-priced combination backhoe-loader on the market. Heavy-duty industrial design, with hydraulic foot-controlled 180° swing, two-way backrest seat, many other advanced features.



Low-priced wheel loader

Beats any ½-yd. loader you ever saw for light loading, backfill and clean-up. 100% Case-engineered, Case-built, with heavy-duty lift-arms and automatic power-leveling.



Bulldozers

Seven low-cost models under 80 HP — four with torque converters — plus larger sizes up to 100 HP, with max. 24,000 lbs. drawbar pull. All models feature optional "power-tilt."

Angledozers

Eleven gasoline and diesel-powered models from 42 to 100 HP. Largest models have torque-converter drive, instant power-shift, power steering—plus exclusive "power-angling" blade.

Case-built tilt-trailers

4 or 8-ton capacity. Hauls behind light truck ... easily loaded or unloaded by one man. Available at substantial saving with purchase of new TerraTrac crawler or Case wheel unit.

Maybe you didn't realize it... but J. I. Case Company now builds the *most complete* line of heavy-duty tractors and equipment of any single manufacturer in the 40 to 100 HP range. You can choose from a complete family of new Case-built prime-movers — *both wheel-type and crawlers* — plus a full line of matching loaders, bulldozers, backhoes, fork lifts and trailers. There's a rig for every need and budget — with just *one warranty, one service source, one easy financing arrangement,* on each complete machine. See your nearest Case Industrial Dealer for full details.

CASE

1st in quality for over 100 years

Clip... Mail

J. I. CASE CO. Dept. D-1548 Racine, Wis., U.S.A.

Send literature and prices on equipment checked.

☐ Crawler loaders ☐ Crawler backhoes ☐ Fork lift
☐ Wheel loaders ☐ Wheel-type backhoes ☐ Tilt-trailers
☐ Four-wheel-drive Terraload'r ☐ Bulldozers ☐ Angledozers

Name _____ Position _____

Company _____

Address _____

City _____ State _____

CT-CL-54r

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Water Intake Rack Rakes

630 Troubled by loss of head at water intakes caused by floating debris, fish and other undesirable elements? Then look into the Newport News mechanical rack rake. Its ruggedly built so that excessive trash loads won't push it away from the racks, and its channel guided for positive cleaning action. The booklet *Rack Rake* describes its operation and advantages. Write today to NEWPORT NEWS, SHIPBUILDING AND DRY DOCK CO., NEWPORT NEWS, VA.

Eliminates Odors

631 Wherever odors threaten—in sewage disposal plants, at refuse disposal sites—apply Aireactor; it will give fast, efficient, economical deodorization. Safe, nontoxic and nonflammable, it also can be sprayed or fogged outdoors to counteract air pollution. For details, write AIREACTOR CORPORATION, 22 E. 40th ST., NEW YORK 16, N. Y.

Aluminum Lighting Standards

632 Aluminum lighting standards for streets, shopping centers, bridges, highways, stadia, etc. are the subject of a new 16-page catalog from KERRIGAN IRON WORKS, INC., NASHVILLE 2, TENN. Engineering data, specifications, accessories, mod...cations and anchor and transformer base details are discussed. For your copy of this inclusive catalog, write the company.

Good Roads Machinery

SCAVENGER

with Catch Basin Attachment

...Cleans Catch Basins in Minutes!

Proved successful for removal of litter, leaves and other accumulated debris from city streets, highways, parks, etc., the Good Roads Scavenger, equipped with catch basin attachment, cleans even the deepest catch basin in a fraction of normal cleaning time.

Wet or dry refuse—paper, leaves, twigs, stones, bottles, cans, etc., are sucked into the Scavenger hopper, for easy disposal, without clogging. Deep-reaching snout cleans catch basins in minutes—a job that normally takes two men many hours—it leaves no mess.

Cities, villages and townships report savings in removal costs up to 50 percent. Faster coverage... 2-man operation... fewer trips to dumping sites... extremely efficient pick-up of all kinds of materials—all add up to substantially lower operating costs.

The ultimate in litter removal, Scavenger's powerful 6-cylinder industrial engine sucks debris through its large 12" intake tube into the big capacity all-steel hopper. Exclusive dust trap eliminates all dust. Available truck or trailer mounted.

For detailed information on the Scavenger write to the Good Roads Machinery Corp., Minerva, Ohio

Good Roads Machinery

Scavenger • Leaf Collectors • Leaf Loaders • Mulch-Vac Sweepers • Asphalt and Aggregate Spreaders • Snow Plows • Ice and Sleet Control Spreaders

Control System for Municpal Parking Lots

633 Globe's Parkontrol System offers municipal parking lot operators controlled parking operation and flexibility, which results in better and quicker service to customers, accurate count and ease of operation. To learn how this system may be adapted to either your small or large lots, write GLOBE TICKET COMPANY, 112 12th ST., PHILADELPHIA 7, PA.

Stop Plates and Slide Gates

634 When designing water and sewage treatment plants, take advantage of aluminum stop plates and slide gates. They are noncorrosive, durable and strong. For complete details, write WASHINGTON ALUMINUM CO., DEPT. 73, BALTIMORE 29, MD.

Push-Pull Pipe Installations

635 Pipe keeps on the move and costs stay down when the Trojan Pipe Puller & Pusher is set to work installing or renewing pipe under pavement. Model A, for ½- and 1-inch pipe, weighs 65 pounds and provides as much as 15 tons of pushing pressure. It requires a 5-foot trench. Model B, either hand or air powered, handles ¾- to 2-inch pipe, has three speeds for different soils and is reversible in 30 seconds. For additional information on the Puller & Pusher, and on push pipe, write THE TROJAN MANUFACTURING COMPANY, 1113 RACE DRIVE, TROY 1, OHIO.

Sanitary Landfill—Methods, Advantages, Requirements

636 For communities planning to adopt the sanitary landfill method of refuse and garbage disposal—and for those already using it—THE OLIVER CORP., INDUSTRIAL DIV., 19300 EUCLID AVE., CLEVELAND 17, OHIO, has published a concise report, *Modern Methods in Sanitary Landfill*. For your copy, write the company for *Bulletin No.* 1-1050.

Utility Trucks for Municipal Service

637 The 1958 line of READING BODY WORKS, INC. utility truck bodies features removable shelves and removable and adjustable shelf and tray dividers that permit operators to vary interior arrangement to fit job requirements. For details on this and the many other new improvements, write the company at READING, PA.

Outdoor Cooking in City Parks

638 Whether you select the Model A-14 or the Model B-14 pedestal park fireplace for your community's outdoor cooking areas, you will get a "stove" with generous cooking area, sturdy steel construction, and excellent draft control. These units are easy to maintain and are fully removal for storage. For details, write KAY ENTERPRISES, JANESVILLE, IA.

Automatic Parking

639 Parking at municipal lots can be automatic, if you use the "Ticket Spitter". Fast, smooth-operating, and simple, it is also comparatively inexpensive. No attendant is required at the entrance. Details may be obtained from AUTOMATIC PARKING DEVICES, INC., 10333 SHOEMAKER AVE., DETROIT 13, MICH.

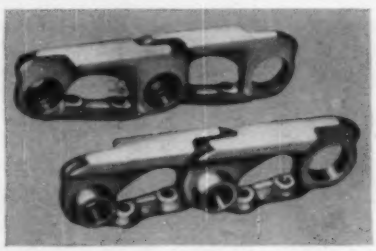
PRETESTING STEEL IS ONE WAY MATCHLESS QUALITY IS ASSURED IN GENUINE CATERPILLAR PARTS

Careful selection of material gives greater strength to new D8 strutless track links

Quality doesn't just happen. The world-famous quality that is the hallmark of Caterpillar earthmoving equipment is a direct result of never-ending research, the finest possible materials, and persistent attention to every manufacturing detail. This is true of Caterpillar machines. And it is true of Caterpillar parts.

The new, strutless link for Cat D8 Diesel Tractors is an example of this emphasis on quality. Each link is able to bear the entire weight of the tractor, over and over again, in the roughest of terrains and climates. This is how Caterpillar makes sure these links meet this challenge:

All steel used for links is given an extensive series of tests *before* manufacture. In the Caterpillar Metallurgical Laboratory it is first analyzed for chemical composition by a spectrograph—slight variances in chemical make-up can result in big differences in the finished product. Then the steel is tested for hardenability; in other words, the degree to which it will respond to heat treating. Resistance to impact loads is measured to insure the track link will give maximum performance under all conditions. Steel that cannot be made into Caterpillar quality links is rejected.



New, strutless link for Caterpillar D8 Diesel Tractors.

The new D8 link is forged—the best way to make a link. Forgings are more dense. They have "inner flow lines"—the equivalent of grain in wood—following the contour of the part, providing greater strength at critical locations as well as resistance to breakage.

"Dubbed-off" link ends eliminate damage to rollers and mating links. Strategic designing of steel into the bushing boss and arch improves fatigue strength. Links are *double* heat treated, furnace heated for a tough core, and "Hi-Electro" hardened for a deep, superhard rail surface.

Features like these mean one thing. A Caterpillar part is your best buy. Your Caterpillar Dealer has full information on the new D8 strutless links and the other quality Cat parts. See him today.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

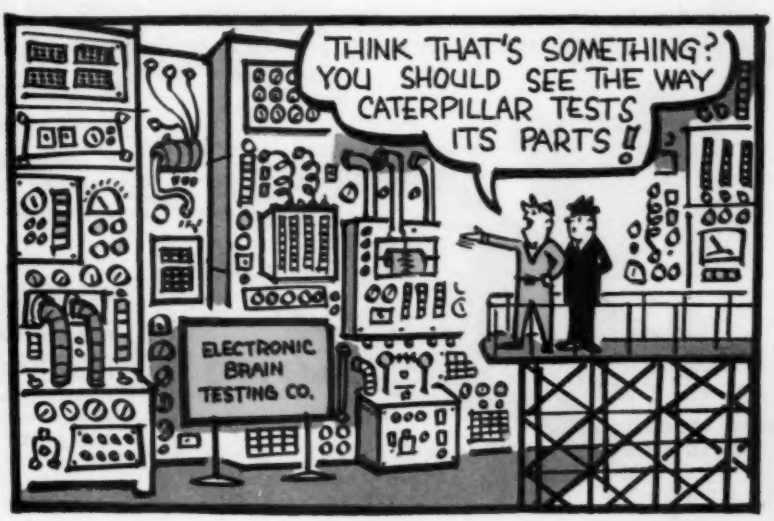
SERVICE TIP

For maximum life, tracks should have 1½" to 2" of slack. Your Operation and Maintenance Instructions have complete adjustment details.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

LINK STRENGTH is measured on this hydraulic press. The design of Caterpillar track parts is under constant examination by the most extensive research facilities in the industry.



Be ahead in your plans with Aero maps

Up-to-date AERO maps are saving time and money for cities and towns throughout the United States. They can advance your engineering plans and development by many weeks or months.

AERO photo-maps, delivered quickly, provide a valuable planning guide for solving city growth problems. AERO topographic maps, prepared from the aerial photos, are so precise they can be used for planning street profiles and grades, sewage and drainage systems, and other engineering work.

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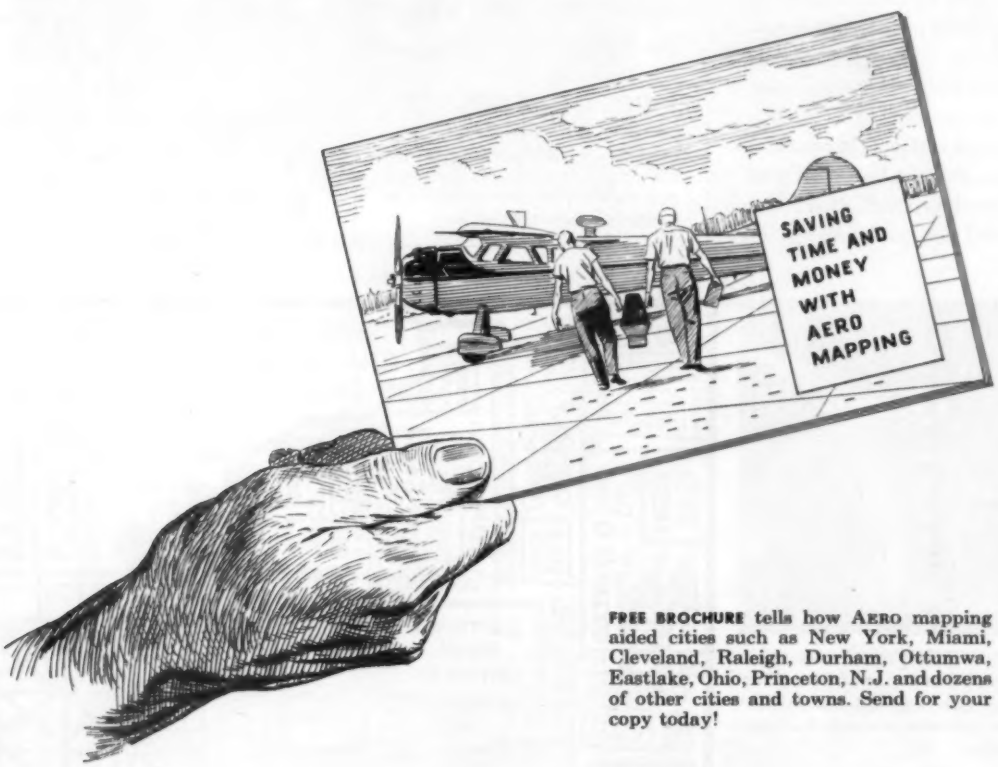
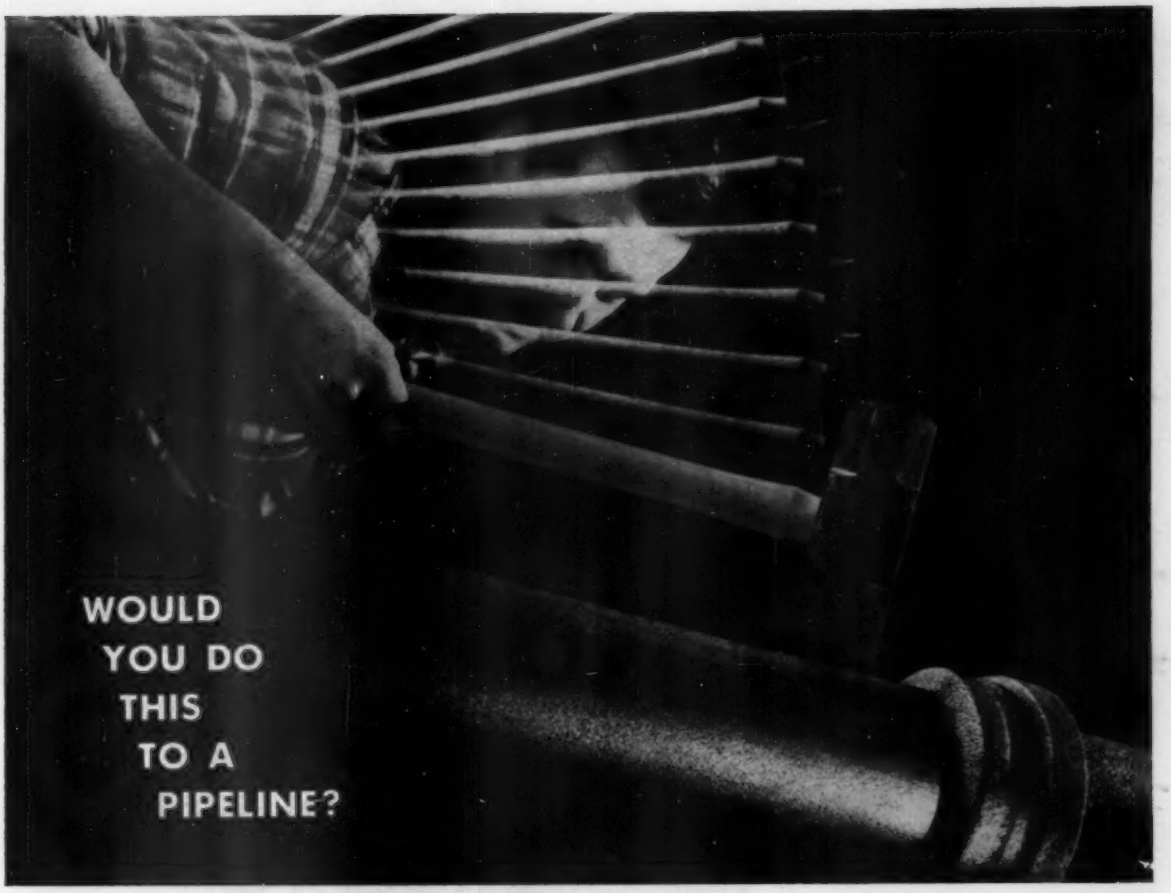
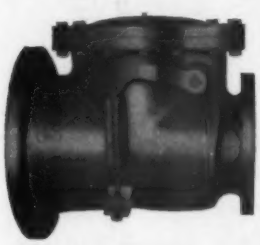


FREE BROCHURE tells how AERO mapping aided cities such as New York, Miami, Cleveland, Raleigh, Durham, Ottumwa, Eastlake, Ohio, Princeton, N.J. and dozens of other cities and towns. Send for your copy today!



CHECK VALVE SLAMMING CAN BE JUST AS BAD!



Even moderate slamming can raise cain with a pump discharge line, causing leakage, throwing pipes out of line or causing other damage that may not be discovered for years. And heavy slamming can cause serious damage and service interruption.

However, check valve slamming CAN be prevented . . . by installation of Ludlow and Rensselaer List 340 non-slamming check valves. These are non-slamming under most severe conditions, by virtue of adjustable spring tension, and are recommended as standard equipment wherever slamming is likely to occur.

Ludlow and Rensselaer check valves are available in sizes from 3 to 30 inches, with or without lever arm and spring. All materials and workmanship exceed the A.W.W.A. requirements for gate valves and fire hydrants.

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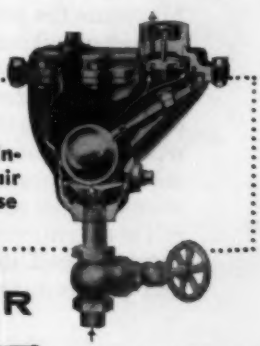
FOR POSITIVE CONTROL

of air inlet or discharge, install Ludlow or Rensselaer air and vacuum and air release valves.



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Whether it's June or January, M-B sweepers help you get

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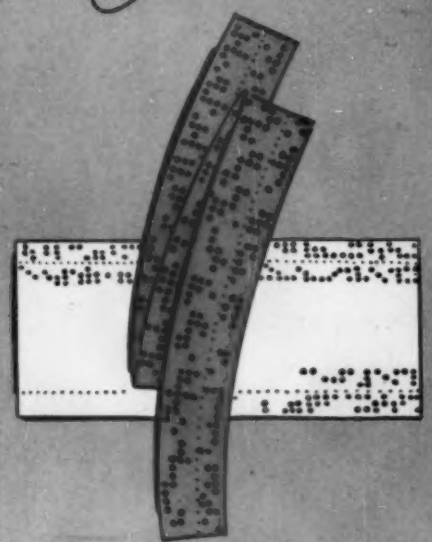

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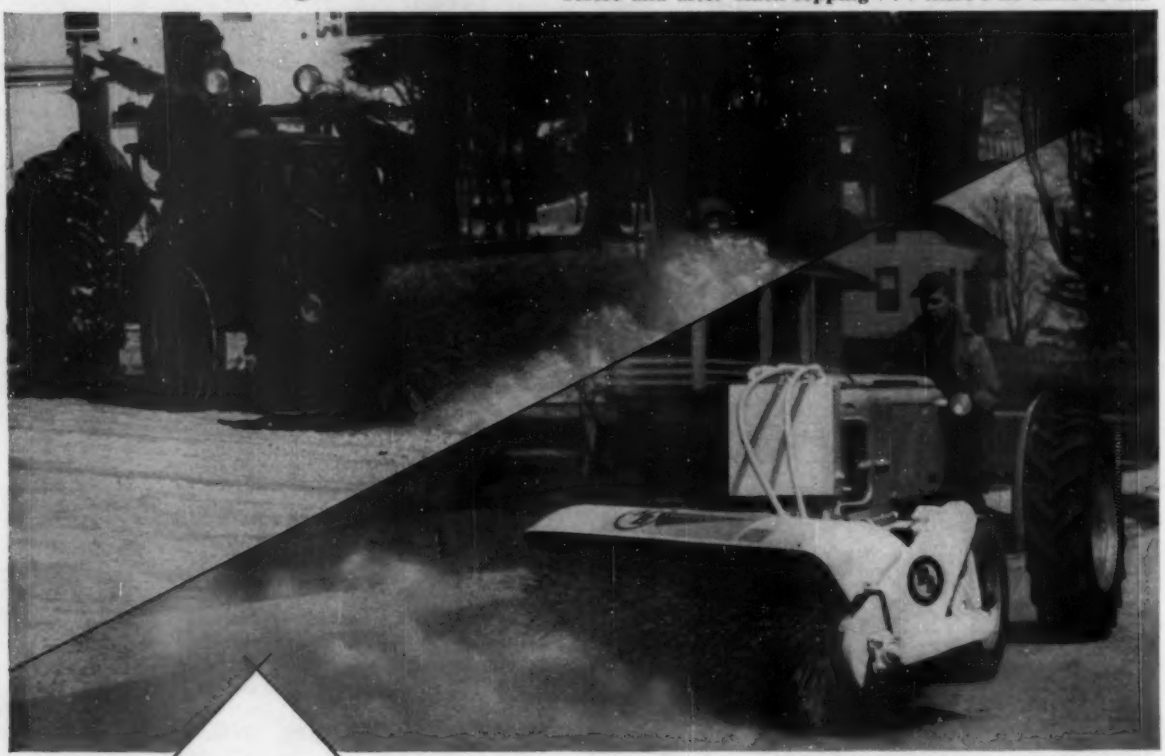
multiply tractor use ...on any job ...in any season

Whether it's June or January, M-B sweepers help you get more value from your tractors. No matter what the season, there's always a job best handled by a tractor sweeper. Here are only a few examples from dozens of typical applications: sweeping sidewalks, streets and playgrounds of dirt and debris; clearing snow up to 6" in depth from thoroughfares, parking lots, etc. . . . also a handy clean-up unit for following snow plows; sweeping grass in parks and on boulevards; keeping runways, parking lots and driveways clear at airports; sweeping street and highway surfaces clean before and after black-topping . . . there's no limit to the



variety of jobs. ▪ With new, M-B two-way hydraulic sweepers, you finish sweeping jobs even faster and more efficiently than before. Your operator has complete control of the two-way, 30° sweeper angle, brush lift and brush rotation while working. "Dead runs" are reduced and the operator has unmatched maneuverability in the tight spots. ▪ M-B hydraulic sweepers are easily mounted on most popular make tractors and tractor-loaders . . . the sweeper head can be separately mounted or removed in minutes. Brooms are available in 32" diameter, 60" and 72" lengths . . . may be turned end-for-end to maintain even wear. M-B mechanical drive tractor mounted sweepers and heavy duty, pull type sweepers have the same high standards of construction and performance. ▪ Your tractor dealer has complete information on the M-B sweeper best suited to your requirements. Call him now for the full story.

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Sanitary Refuse and Garbage Collection Bodies
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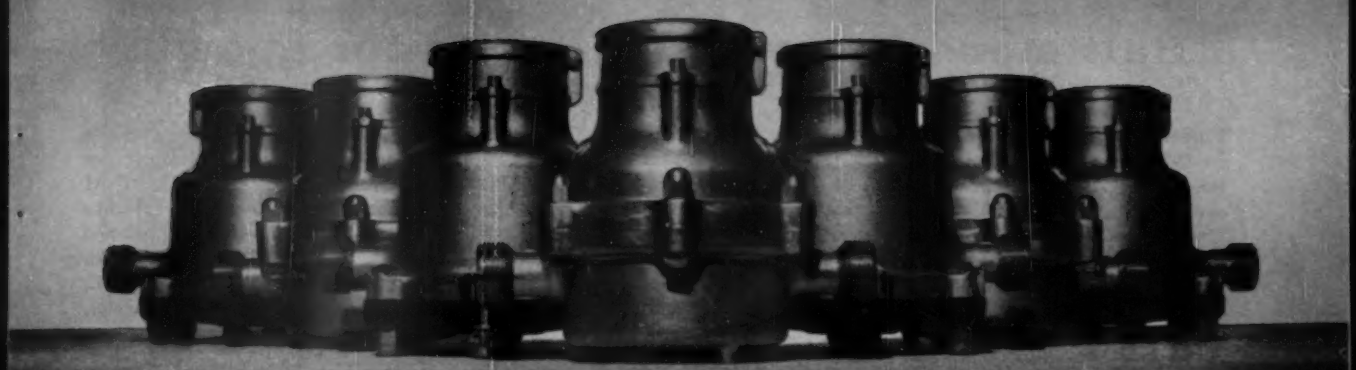

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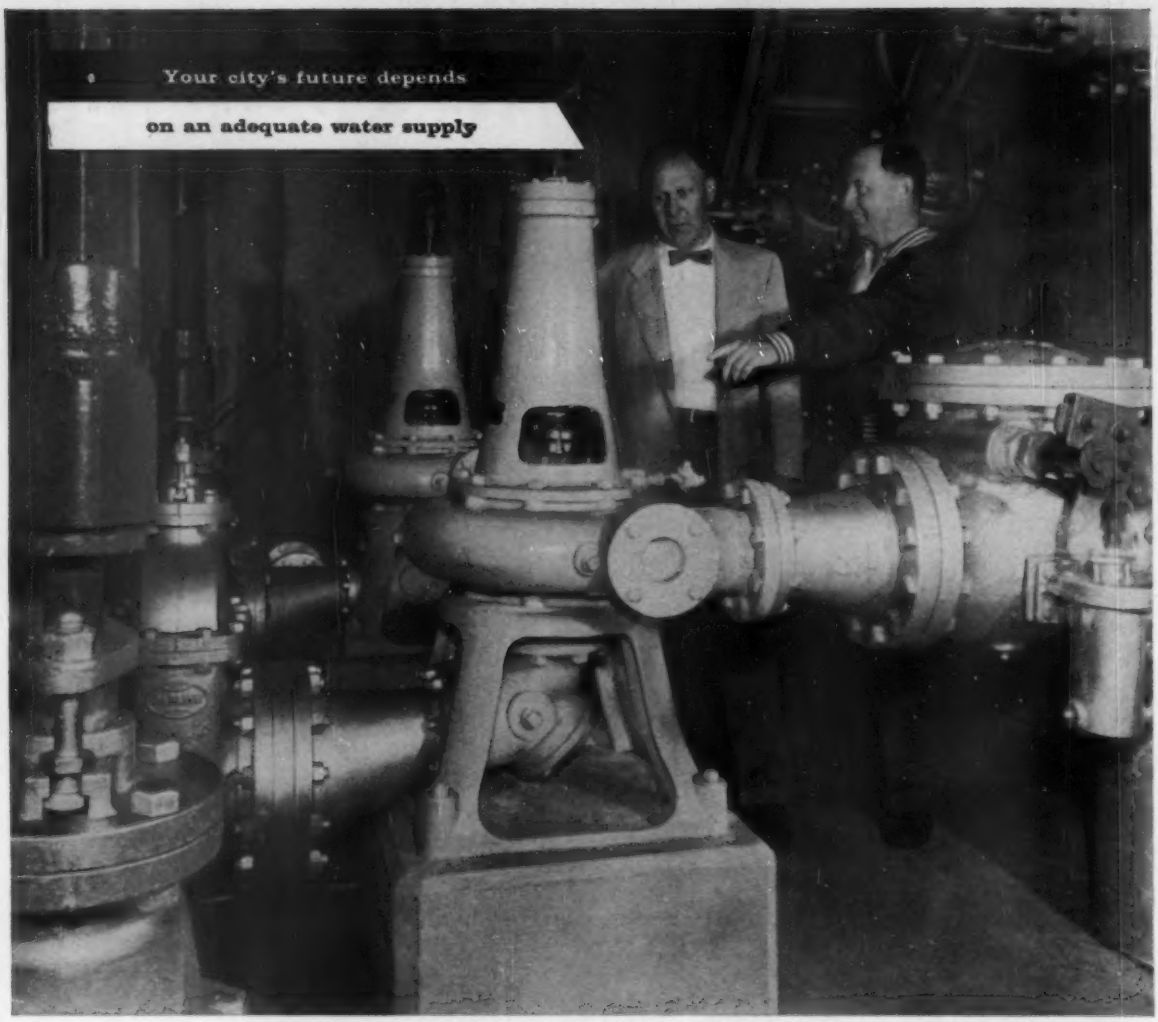

Mr. George W. Welsh, Jr. (left), Deputy Chief of Bureau of Operations for Baltimore County, and Asst. Superintendent of Pumping Division Louis A. Hauptman inspect Fairbanks-Morse non-clog pumps in Stella Maris Pumping Station.

Baltimore County gets ready for growth

Forecasting a population of 700,000 by 1975, Baltimore County, Maryland, is not to be caught short for sewage-handling facilities. Since 1948 this foresighted community has spent an average $5,000,000 a year for expansion of facilities—and plans to have over 70 pumping stations by the end of this year.

Over two-thirds of the pumps in the system are Fairbanks-Morse, driven by F-M motors. Typical of F-M ability to meet exact requirements are the installations of F-M bladeless-impeller pumps, designed for non-clog, trouble-free operation.

Like so many communities today, Baltimore County finds exclusive advantages in working with Fairbanks-Morse—because the big, broad F-M line provides the ideal combination: the right type, right size pumps driven by the right type, right size diesel engines or electric motors—all built by F-M, all backed by undivided F-M responsibility. Why not investigate what F-M unmatched experience and facilities can do for you? Write today to Fairbanks, Morse & Co., Dept AC-4, 600 So. Michigan Ave., Chicago 5, Illinois.

Ask for F-M Bulletin 5410K on Non-Clog Pumps.

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The flexible joint... especially designed for river crossings and other difficult installations

American
MOLOX BALL JOINT
Cast Iron Pipe

River crossings and other underwater pipe installations present no problems when you select American Molox Ball Joint pipe. Its rugged construction adapts it to a wide variety of installation methods, and once laid, the joint remains bottle-tight under pressures up to several hundred psi at any angle within the range of liberal deflection it provides.

Designed to meet the severe requirements of submarine pipe lines, American Molox Ball Joint pipe offers all the advantages of high strength Mono-Cast cast iron pipe with the socket cast integrally with the pipe, a heavy alloy cast steel follower gland for added strength, plus the finest bolting of any flexible joint pipe available today . . . using a full set of high strength, large diameter, corrosion-resistant American stainless steel bolts.

Compare the special features of American Molox Ball Joint pipe with other flexible joint piping. Write now for a new 32-page descriptive brochure. See for yourself how American Molox Ball Joint pipe has been installed under various installation conditions.

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How Koehring® Mud-Jack® raises sunken slabs, *stabilizes sub-grades*

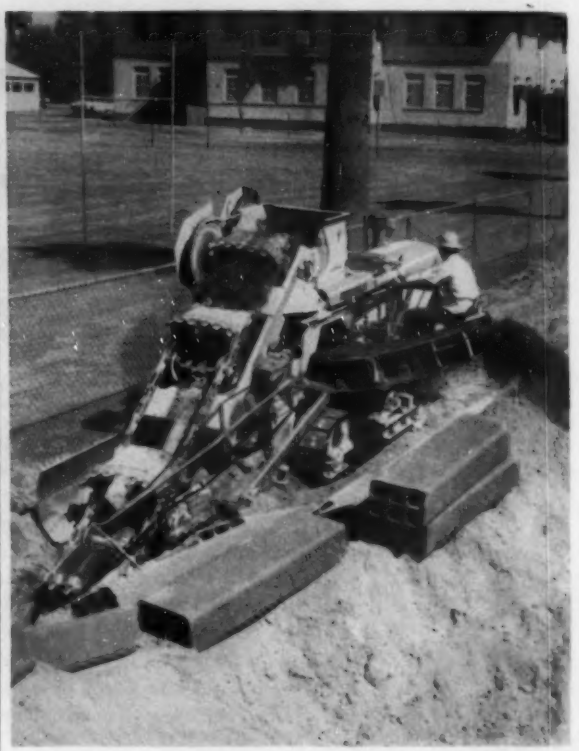
Want a low-cost way to raise sunken curbs, sidewalks, gutters, and street slabs? Then check the Koehring Mud-Jack. It pumps a soil-cement slurry under pressure into small holes drilled through sunken pavement. This displaces air pockets, water and water-saturated materials, raises the slab — leaves a firm, *permanent* sub-grade.

Koehring Mud-Jack method not only saves costly reconstruction of sunken slab areas, but also eliminates interference to traffic. It is not necessary to close streets. Pedestrian traffic is not affected, and all the usual construction materials and equipment needed to rebuild a section of concrete are eliminated. Work is done quickly without inconvenience to the public. Mud-Jack comes in two sizes: small compact No. 10, and the big No. 50 for street maintenance.

◀ Read all about it

Koehring's new catalog "Mud-Jack Method" illustrates by photographs, diagrams, charts how Mud-Jack works — shows its many applications. New 16 page catalog is yours for the asking. Write for copy today.

K803C



Dig up to 25 feet per minute *with utility-size 155 Trenchliner®*

Small in size, big in capacity, Parsons® 155 Trenchliner digs 16 to 26 inches wide, at depths to 10 feet. It produces from 5.8 inches to 25 feet of clean-cut trench per minute. Low speeds let the 155 "inch" its way past cross-pipes and other obstructions, typical of city digging. High speeds give maximum feet of trench per minute on clear right-of-way.

Compact, low and narrow

For all its big capacity, working height on this utility-size 155 Trenchliner is only 7 feet-4 inches. It works under trees and other overhead obstructions where larger trenchers can't go. Width over crawlers is only 5 feet-4 inches, for operating between buildings and in narrow alleys. Power-shift conveyor avoids side obstructions — places spoil bank on either side of trench.

Positive, down-crowd boom starts cut fast, holds accurate grade — undercuts walks, curbs, gutters, or makes vertical set-ins. Heavy-duty 155 also has cast-steel buckets, "Tap-In" teeth, tractor crawlers with 16-inch grouser treads, or 12-inch flat shoes. Call your local Parsons distributor today, or write us.

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RAVENNA, OHIO* chooses

TYLOX

Rubber

PIPE GASKETS

to

- ***REDUCE COST***
- ***PREVENT LEAKS***
- ***KEEP ROOTS OUT***

of new city sewers

When engineers and city officials decided on TYLOX Rubber GASKETS for jointing pipe of Ravenna's new sewerage, drainage and treatment plant expansion project, they took an important step in protecting public funds. Here's how their TYLOX specification assured Ravenna citizens of *most* for their waste disposal dollar . . .

FAST PIPE-LAYING to help keep construction costs down. TYLOX also permits pipe coupling in wet trenches, and laid lines can be backfilled immediately.

WATER-TIGHT JOINTS to prevent infiltration, thus keeping treatment plant loads at a minimum, and eliminating the chance of root and sediment penetration.

CORROSION-RESISTANCE to assure long service, free of joint failure. TYLOX is not affected by sewerage and industrial waste acids and alkalies. Under ground and under compression it lasts for the life of the pipe.

TYLOX Rubber Gaskets are the *one* pipe jointing material that fully meets the requirements of designer, builder and taxpayer alike. Specify TYLOX to speed pipe-laying and assure leak-proof, long-lasting pipe joints on your next project.

5033

* **PROJECT:** City of Ravenna, Ohio, sewerage, drainage and treatment plant expansion, Richard Miller, Service Director.

ENGINEERS: Karl Dussel, Ravenna City Engineer, and Floyd G. Browne & Associates, Consulting Engineers, Marion, Ohio

CONTRACTOR: Tyson Construction Corporation, McLean, Virginia.

PIPE: TYLOX-Coupled Vitrified Clay Pipe, 8" to 27" diameters, manufactured by Universal Sewer Pipe Corporation, Cleveland, Ohio.

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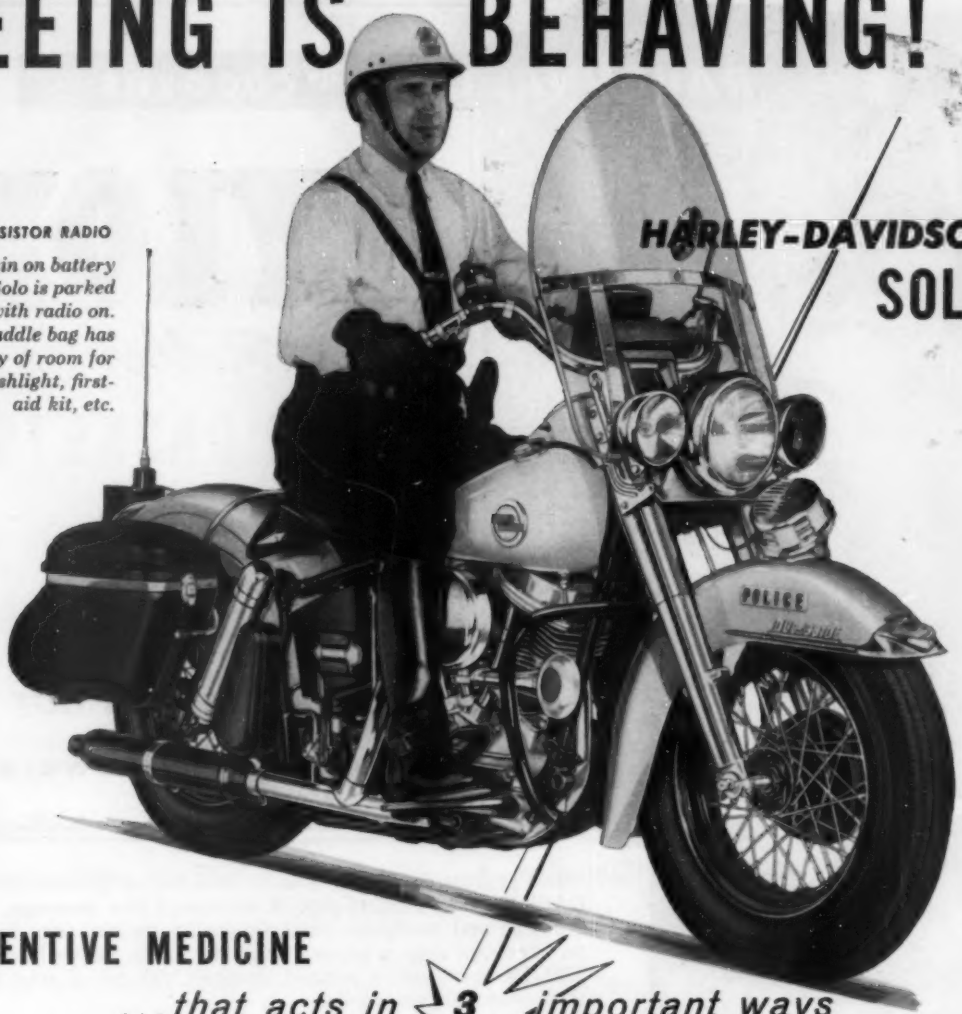
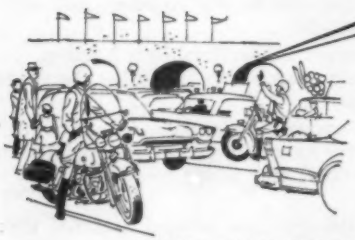
Cuts drain on battery when Solo is parked with radio on. Twin saddle bag has plenty of room for flashlight, first-aid kit, etc.



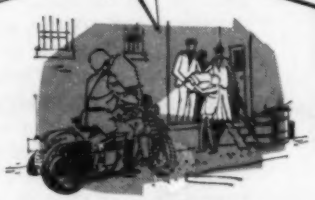
HARLEY-DAVIDSON SOLO

PREVENTIVE MEDICINE

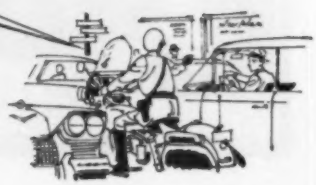
...that acts in **3** *important ways*



★ Patrolling and controlling traffic



★ Discouraging potential lawbreakers



★ Extending range of effectiveness

HARLEY-DAVIDSON SOLOS are potent symbols of law and order. The ability of an officer on a Solo *to see* and *be seen* prevents many traffic violations and accidents. It also discourages the would-be thief, thug or molester.

To this *preventive ability*, add the Solo's amazing *flexibility* and you have in your command a sure-cure for modern traffic problems . . . a vehicle that moves easily in congested areas, and at the same time possesses swift mobility to curb speeders and other law-breakers.

And with endless lines of automobiles streaming through on freeways and super highways, small communities, as well as large, are experiencing "big-town" traffic problems — problems that can best be solved by alert officers on Harley-Davidson Solos.

See your dealer or write HARLEY-DAVIDSON MOTOR CO., Milwaukee 1, Wis. for free illustrated literature.

HARLEY-DAVIDSON police motorcycles

Model 40 A-W Motor Sweeper (2 cu. yd.) operating in the City of Norwood, Ohio. Inset shows Edwin J. Tepe, Norwood's Director of Public Works.

"Our Austin-Western is very maneuverable . . . does an excellent cleaning job"

says Edwin J. Tepe, Director of Public Works, Norwood, Ohio

The City of Norwood, Ohio, is a pleasant residential and industrial city surrounded by Cincinnati, and its Director of Public Works, Edwin J. Tepe, believes in keeping it attractive. He says: "We have been using an Austin-Western sweeper for the past 7 years, and were so well satisfied that when we were in the market for a new machine we decided to buy another A-W unit.

"The A-W's front steer is safer, because the operator can always see what he's doing and the machine is very maneuverable, gets in and out of tight places quickly. Furthermore, the adjustable, bump-proof gutter broom does an excellent cleaning job."

Service is very good. "Another primary consideration when we decided to buy was the fine service we received from our local distributor. Maintenance has been very low, but it's good to have spare parts readily available when you need them."

There is an A-W Motor Sweeper to fit every municipal budget: Model 40 (2 cu. yd.) and the larger Model 60 (4+ cu. yd.). Both can be purchased with a single gutter broom, and the second broom can be added later at low cost if the need arises. Leaf broom, cab and windshield are also available. Write us for more information on motor sweepers or see your nearby A-W distributor.

Austin-Western CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

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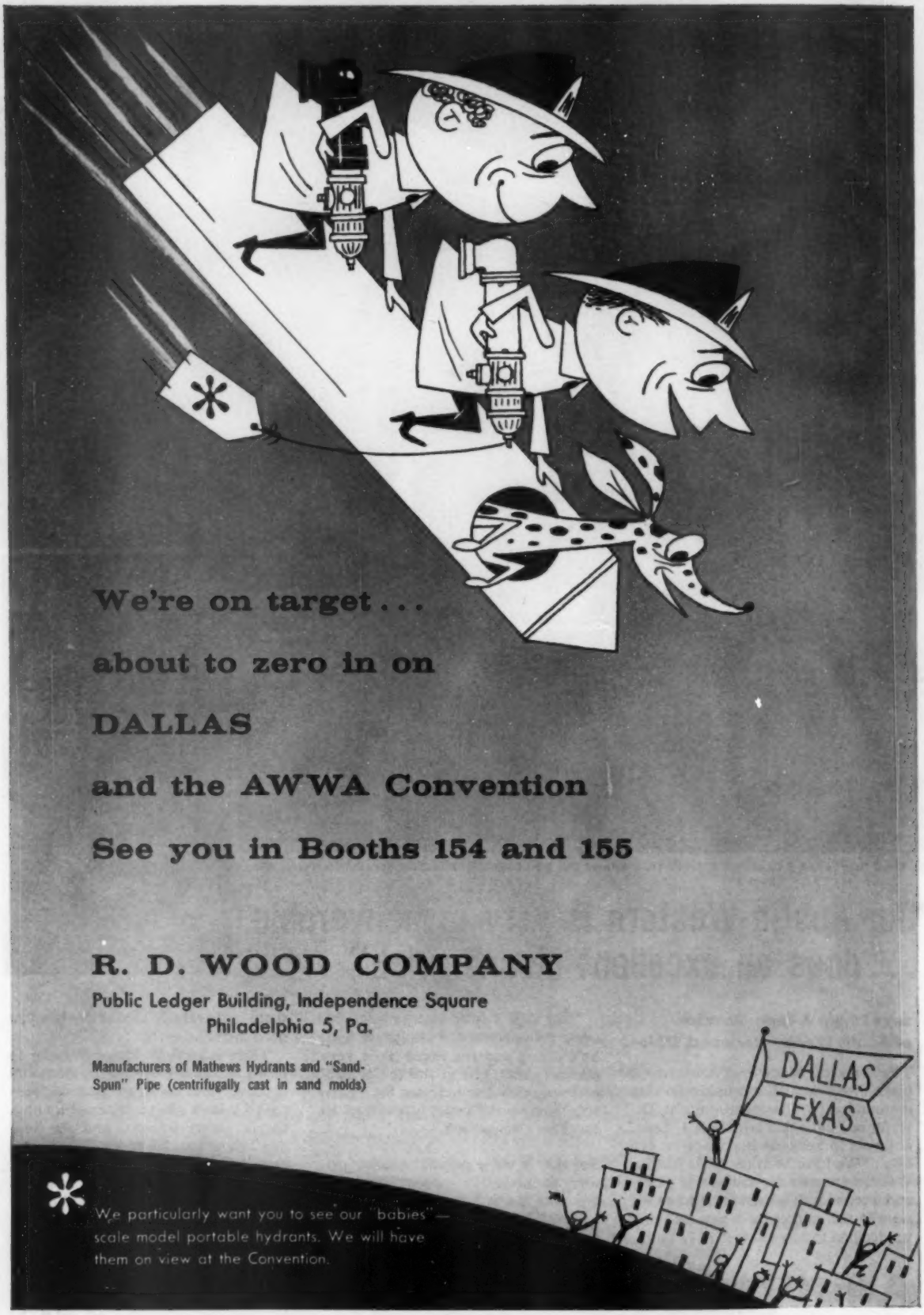
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Hydro E-Z PACK

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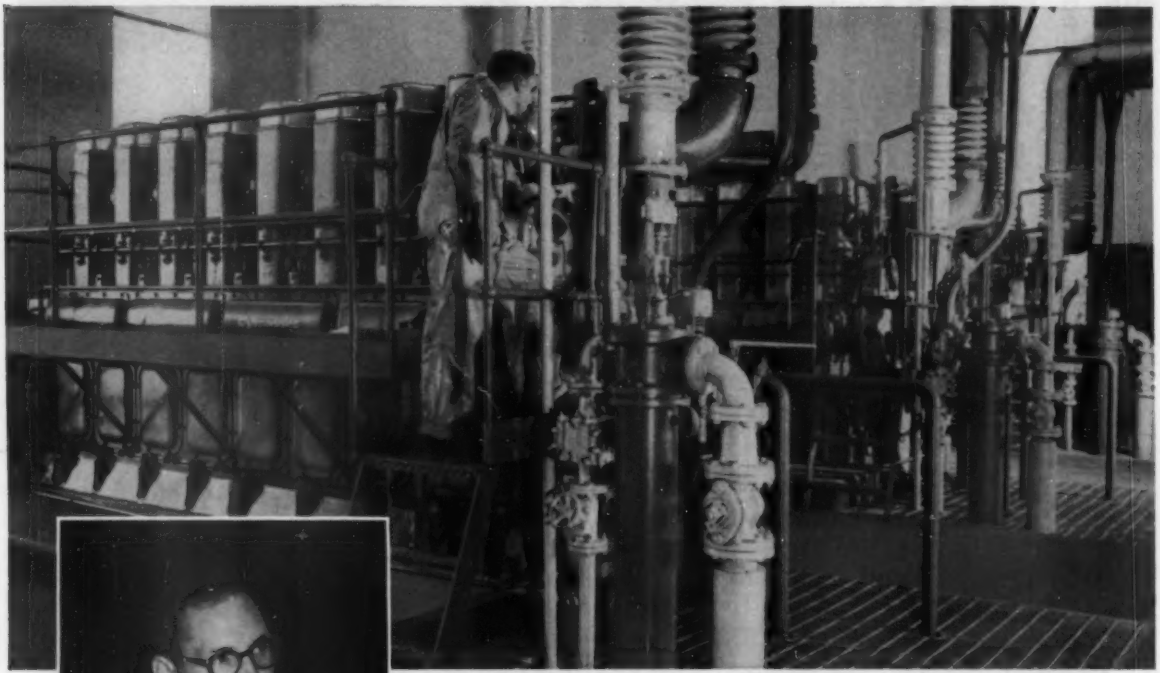

Three 625 HP Enterprise Dual Fuel engines at San Jose, Calif. handle the complete power load for all electrical and pumping requirements of this sewage plant.

"Trouble-free and maintenance-free, with very reasonable manpower requirements."

Frank M. Belick

Supt., San Jose, Calif., Sewage Treatment Plant

"We're extremely pleased with the record of efficiency and economy experienced to date with our three Enterprise Engines. They have operated trouble-free and maintenance-free, fitting in exceptionally well with our treatment plant requirements.

"By operating on methane, the sludge gas by-product of sewage treatment, our fuel costs have remained at a minimum. In addition, the Enterprise Dual Fuel 'Select-O-Matic'® feature has given us the flexibility we need when sludge gas production becomes erratic. On either gas or oil the engines respond well to changes in power demands. All in all, these engines provide us the dependable, continuous operation we need with very reasonable manpower requirements."

This and other model sewage plants in such cities as New York, East Boston, Mass., and San Diego, Calif., attest to the fact that complete dependability and economy of municipal operations start with Enterprise Engines.

Engines of Every Type and Size for Every Municipal Need

Enterprise specializes in engines for stationary and portable electric power generation, flood and water pumping systems, and sewage plant power. Versatile fueling is available in diesel, dual fuel and spark ignited gas engines. Models range from 73 to 7703 HP. Call in the Enterprise sales engineer in your area, or contact factory direct for information or help with your plans.

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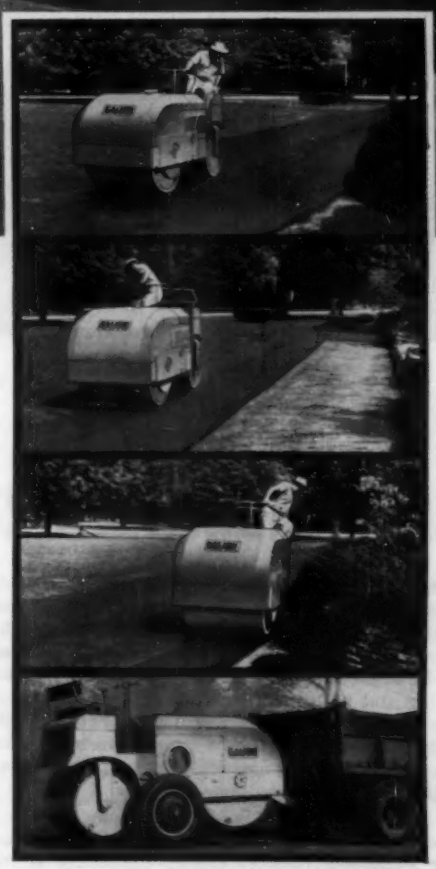

AND BECAUSE IT IS ECONOMICAL AND EASY TO OPERATE, contractors, state highway departments, counties, cities, villages, and airports use it more than any other roller.

Contractors make it pay for itself over and over when they buy the transport attachment and move it quickly from job to job. Write for literature.

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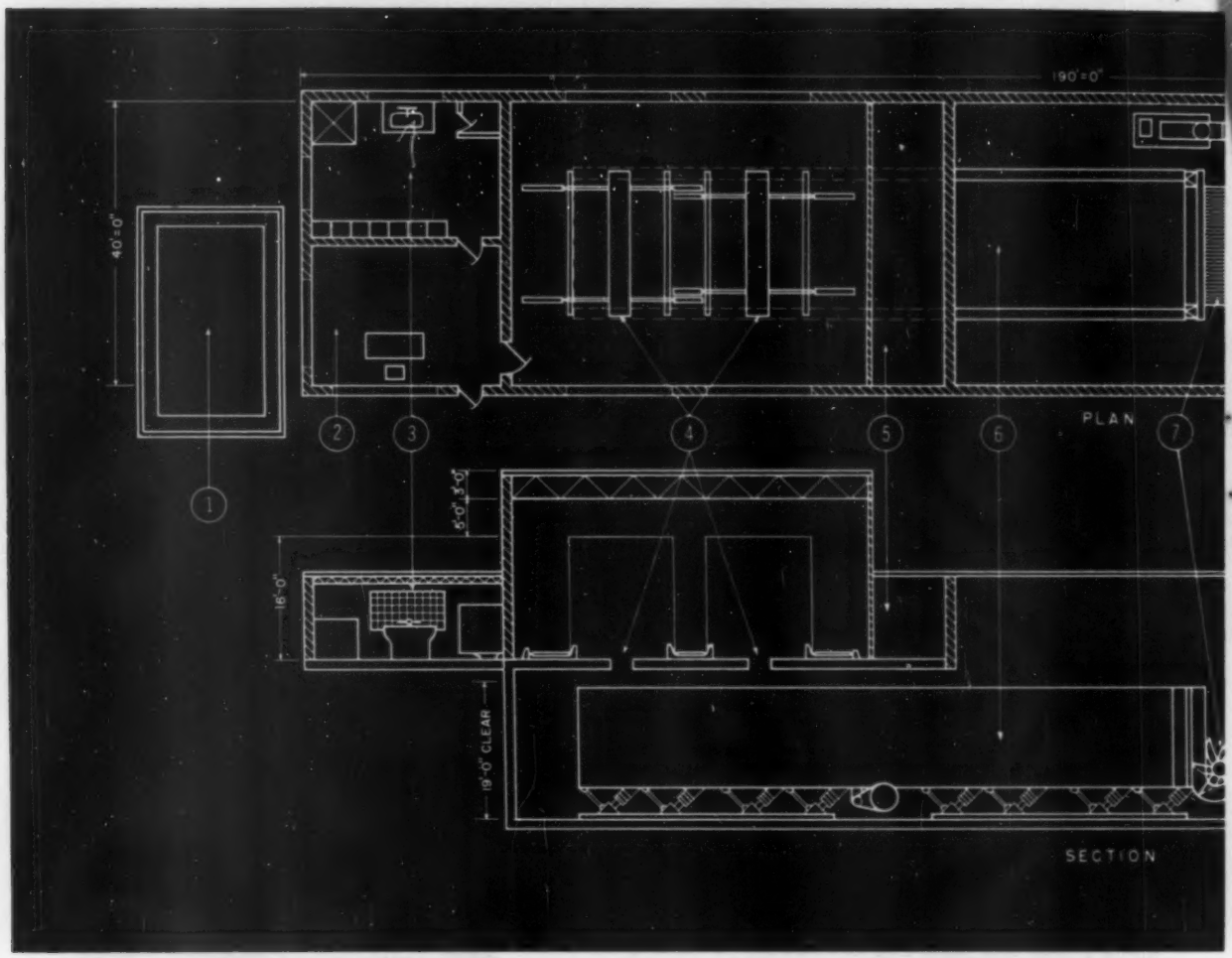

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The Dravo Continuous Flow Incinerator is designed to make use of developments in materials handling, combustion and air pollution control that meet two considerations: One—add to efficiency of the operation, Two—be economical in first cost and contribute to low operating and maintenance costs.

As a result, this type of installation can be built for **two-thirds the cost of other equivalent facilities.** Here are two of the construction design principles that contribute materially to this low cost:

1. The Continuous Flow Principle. The use of a storage-type conveyor permits direct unloading of refuse trucks. This system avoids the expense of separate storage facilities and the accompanying unloading and handling facilities.

2. The Water-Wall Furnace Principle. The water-wall furnace eliminates use of thick, expensive refractory walls. In many installations, waste heat can be recovered in the form of hot water or steam.

The Dravo Incinerator provides high temperature combustion, which, with the wet scrubber system, assures the absence of fumes and fly-ash. A plant may therefore be built in heavily populated areas. The lower construction cost inherent in this design makes incineration economically feasible for any community.

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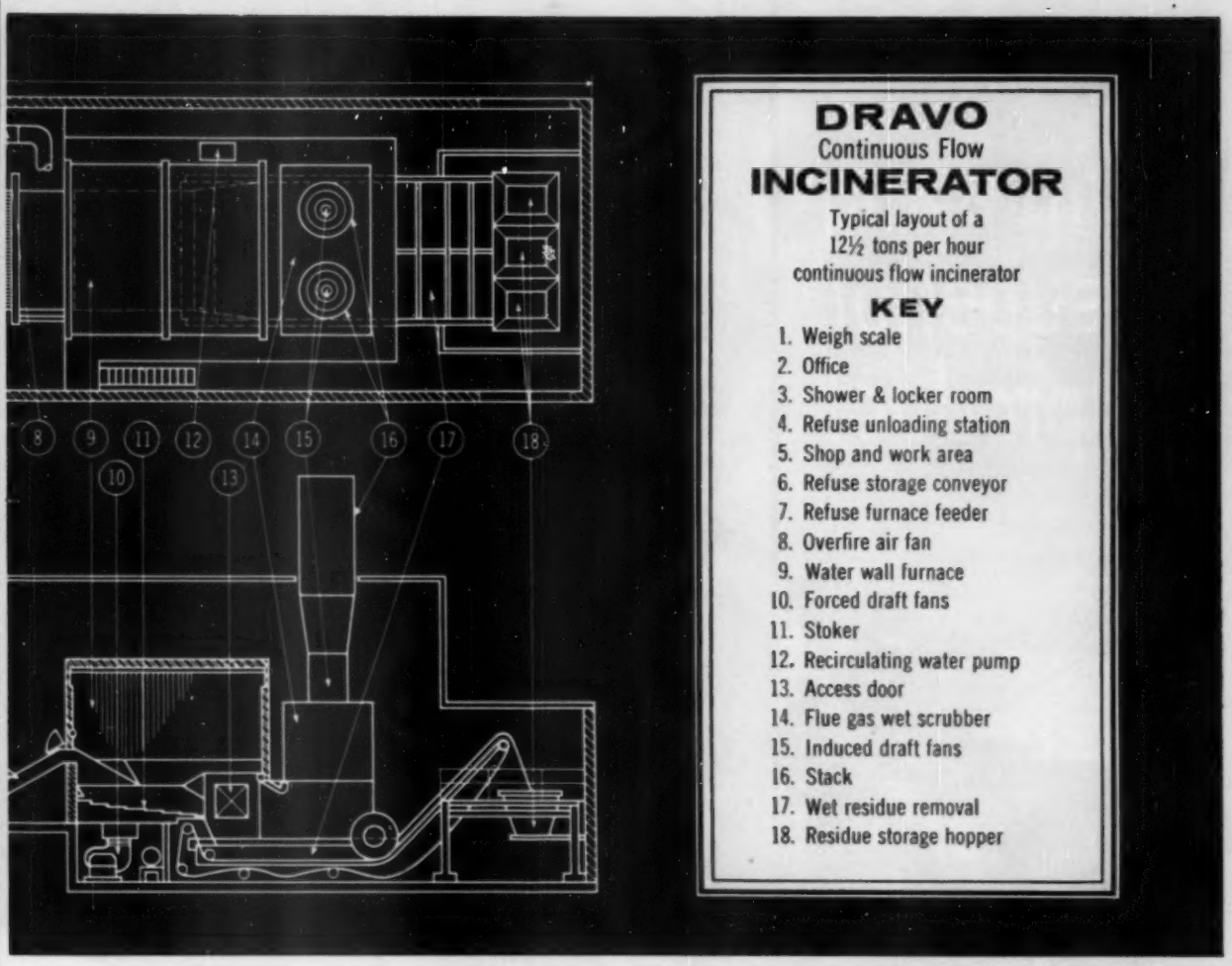
Blast furnace blowers • boiler and power plants • bridge sub-structures • cab conditioners • docks and unloaders • dredging fabricated piping • foundations • gantry and floating cranes • gas and oil pumping stations • locks and dams • ore and coal bridges

American Concrete Cylinder Pipe has long been established as one of the outstanding developments in the



DRAVO
Continuous Flow
INCINERATOR

Typical layout of a
12½ tons per hour
continuous flow incinerator

KEY

1. Weigh scale
2. Office
3. Shower & locker room
4. Refuse unloading station
5. Shop and work area
6. Refuse storage conveyor
7. Refuse furnace feeder
8. Overfire air fan
9. Water wall furnace
10. Forced draft fans
11. Stoker
12. Recirculating water pump
13. Access door
14. Flue gas wet scrubber
15. Induced draft fans
16. Stack
17. Wet residue removal
18. Residue storage hopper

of municipal refuse . . .

DRAVO INCINERATORS COST LESS TO OPERATE

One of the basic principles on which design of the Dravo Incinerator is based is Continuous Flow. This is more than simply a conveying system, since it is designed to move refuse from the unloading end to residue storage with minimum operator attention. Flow is automatic, allowing a comparatively small staff to operate the facility. Drive-through unloading arrangement assures maximum use of trucks.

Collection costs are lower, too. Refuse does not have to be separated and cleanliness of the plant permits central location where haulage distance can be shortened. Here are a few of the features which provide economical operation:

- No storage pits—no cranes or crane operators.
- No waiting to unload trucks, no need for backing or turning areas.
- No massive refractory wall furnaces—no extensive shut downs for relining of furnace walls.
- Complete combustion of all burnable refuse means less residue.
- Automatic operation of Continuous Flow system reduces operating personnel.

Low-cost construction and low-cost operation are the keys to a really efficient municipal refuse disposal system. Our engineers will be glad to work with you in developing the most economical solution to your particular problem. Write Dravo Corporation, Dravo Building, Pittsburgh 22, Pa.

process equipment • pumphouses and intakes • river sand and gravel • sintering plants
slopes, shafts, tunnels • space heaters • steel grating • towboats, barges, river transportation

DRAVO
CORPORATION

improving a superior product

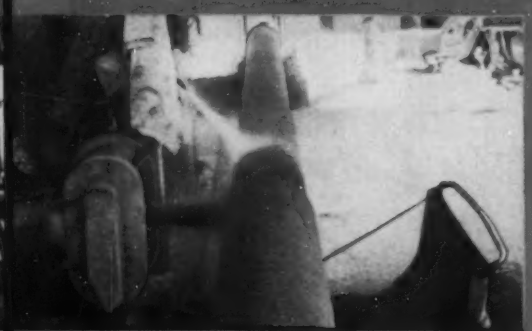
American Concrete Cylinder Pipe has long been established as one of the outstanding developments in the field of pressure transmission of water. This superior design combines the physical properties of steel with the structural and protective properties of concrete – producing a pipe of great strength and long life. Important transmission lines of American Concrete Cylinder Pipe are today serving most of the major cities and population centers in the western United States.

Through the years, continuing research has led to improved features in the manufacturing process. These features enrich the alkaline environment surrounding the steel components, which environment is so necessary to the continuing and everlasting protection that well-made concrete gives to this high quality pressure pipe.

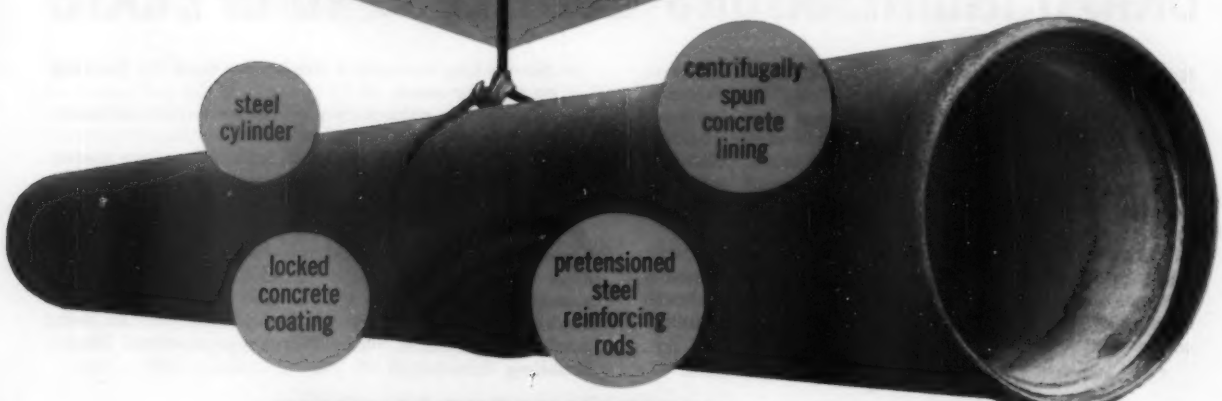
Specify these plus-factors featured by American – where research, development and quality control are always striving to make high quality products even better.

American Concrete Cylinder Pipe is available in a diameter range of 12" through 60" I.D. and in standard lengths of 32 feet.

Rich cement wash applied to steel reinforcing rod just before it is wound under measured tension and with accurate spacing around concrete lined cylinder provides positive assurance of a highly alkaline environment between surfaces of cylinder and circumferential reinforcement.



An additional rich cement wash over the entire outer surface of the prestensioned steel cylinder before application of the pipe's dense mortar coating assures maximum alkaline environment where it is most needed.



American PIPE AND CONSTRUCTION CO.

Los Angeles: 4635 Firestone Blvd., South Gate, Calif., LOrain 4-2511

Hayward: P.O. Box 630—JEfferson 7-2072

San Diego: P.O. Box 13—CYpress 6-6166

Phoenix: 2025 South 7th St.—ALpine 2-1413

Portland: 518 N.E. Columbia Blvd.—BUtler 5-2531

County road duty tests operator and machine

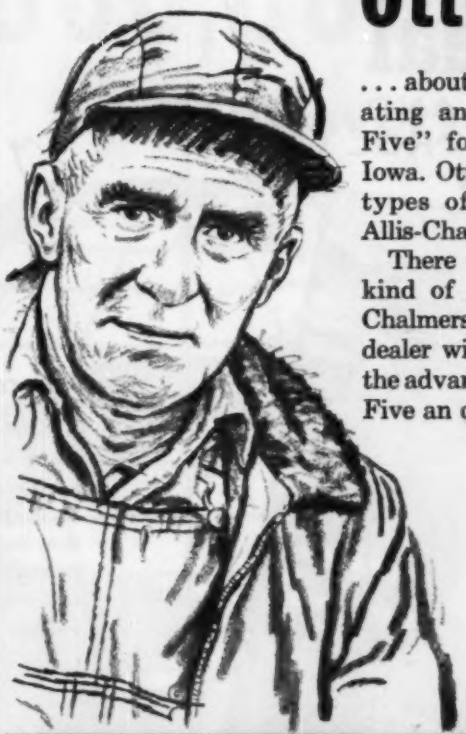
Otto Nikoley, Alta, Iowa, works full time maintaining roads for Buena Vista County.

Eight months a year, he and the Allis-Chalmers Forty Five motor grader work a program of finishing dirt and gravel roads. An average of three passes is all that's required to finish most of his jobs. During winter months, the grader is still productive. Equipped with snowplow, the machine is busy keeping roads open and traffic on the move.

Otto and the Forty Five work well together. There's plenty of power at hand to do the job. The Forty Five is easy operating, too. The platform is roomy and the deck is clear. Visibility is excellent all around, sitting or standing. And the blade's controls can't kick back. When Otto moves the lever, toggle engages or releases clutches surely, without wrist-snapping backlash.

Put your operators on Allis-Chalmers motor graders. More and more counties are stretching tax dollars by doing it. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wis.

Ask Operator Otto Nikoley



. . . about motor graders. He's operating an Allis-Chalmers "Forty Five" for Buena Vista County, Iowa. Otto will tell you that of all types of graders, his choice is Allis-Chalmers every time.

There are good reasons for this kind of enthusiasm. Your Allis-Chalmers construction machinery dealer will be glad to demonstrate the advantages that make the Forty Five an operator's favorite.

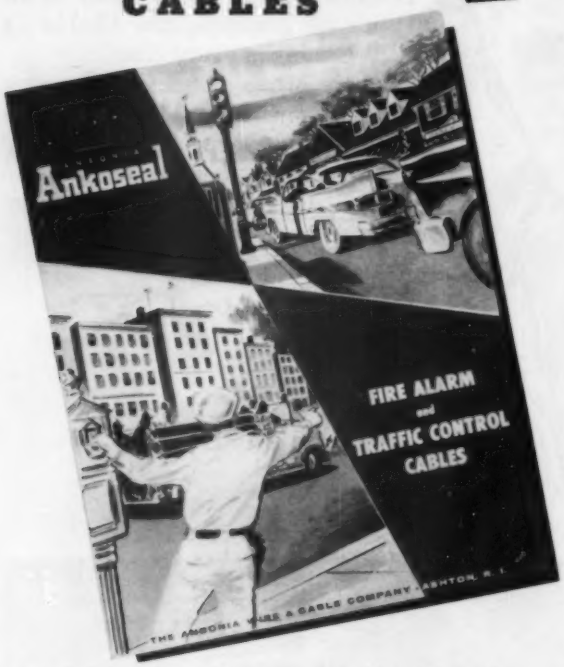
FORTY FIVE
120 brake hp • 6 speeds forward • 3 speeds reverse • 23,800 lb

Look ahead...*move ahead*
...and stay ahead with ALLIS-CHALMERS

New Literature

ANSONIA® Ankoseal

FIRE ALARM AND TRAFFIC CONTROL CABLES



Here's up-to-the-minute, comprehensive information to help you when specifying cables for Fire Alarm and Traffic Control systems. It is offered to you by Ansonia, America's leading pioneer in the research and development of plastic insulated cables.

Ansonia Ankoseal cables are *engineered* for *quality* — for years of low-cost, trouble-free service. Hundreds of communities depend on Ankoseal cables for their vital signal systems. You can depend on them, too!

Send for this new literature, today!

THE ANSONIA WIRE & CABLE COMPANY, ASHTON 9, R. I.

The Oldest Name In Plastic Cables In The Most Modern Plant Devoted Entirely To Producing Plastic Cables

THE ANSONIA WIRE & CABLE CO., Ashton 9, R. I.

☐ Please send, without cost, new 8-page Fire Alarm & Traffic Control Cable brochure.

☐ Please have your representative call — no obligation.

Name .....

Position .....

Municipality or Company .....

Complete Address .....

112-8

INCINERATOR MAINTENANCE CAN BE CUT!

Here is Plibrico's method for reducing costs in two major areas of maintenance expense

THE FURNACE LINING

Greatest potential source of maintenance expense is the lining . . . and you can see why, for it's subjected to the greatest punishment. Temperature fluctuations cause lining expansion and contraction; sudden inrushes of cold air during charging cause thermal shock; and there's abrasion to contend with too. These destructive forces attack an ordinary lining of fire brick where it's weakest . . . in the joints . . . hastening failure.

There are no joints in a Plibrico lining. What's more a Plibrico lining has a positive anchorage system holding it securely in place. Hence that weakness, that cause of premature failure, that source of maintenance expense is eliminated.

THE STOKER

You know the more complex a thing is, the greater are its chances of failure, the more difficult and expensive it is to repair. The Combustikator stoker is simplicity itself. The ruggedly built grate assembly works as a single unit, driven one direction by a motor through simple mechanical linkage, and returned by husky power springs. Nothing complicated, but how effective! That's why it can be your answer to high stoker maintenance. You'll get a bonus saving with the Combustikator, too, for it provides automatic ash discharge, cutting ash handling costs.

May we place all the facts before you?

Plibrico INCINERATORS

1800 KINGSBURY STREET • CHICAGO 14, ILLINOIS

over 5,000,000,000

gallons every day

flow through Roberts-equipped plants throughout the Americas

Municipalities and industry alike, throughout the Western Hemisphere, have long recognized the complete assurance of trouble-free service year after year that is built into every Roberts water purification installation . . . the result of over 60 years of specialization and progress.

nameplate of dependability...

MECHANICAL EQUIPMENT
BY
ROBERTS FILTER MFG. CO.
DARBY, PENNA.

PROOF!

To Whom It May Concern:

You can be sure of making the wisest investment and obtaining the most productive equipment by inviting leading manufacturers to participate in competitive on-the-job demonstrations with qualified operators.

The demonstration reported here was held last year at my request and I personally kept the records of the times and tonnages in all instances.

The results gave me definite proof of the superior performance of the "PAYLOADER" machine and was the basis for my recommendation for the purchase of this equipment.

Phil Bigham

PHIL BIGHAM
County Engineer
Barton County, Kansas

Independent Tests with Factory-Trained Operators Prove PAYLOADER® Best

You can't make money on manufacturers' claims. It's performance on-the-job that counts. That is why we welcome the opportunity to report the results of independent, unbiased competitive tests such as the one tabled below. "PAYLOADER" tractor-shovels will not only give you greater performance and production . . . they'll PROVE it on your job.

	Run No.	Travel Distance	Model HO PAYLOADER	Machine "A"	Machine "B"
Loading Trucks from Stockpile... Tons per Hour	1	——	432	289	222
	2	——	391	324	254
	3	——	366	311	259
	4	——	358	288	285
Loading Trucks from Windrows... Tons per Hour	5	150 ft.	327	192	207
	6	150 ft.	313	192	178
	7	100 ft.	390	262	240
	8	100 ft.	394	274	253
Overall Average...Tons per Hour			**371**	**267**	**237**

Ask about . . .

PURCHASE AND HOUGH LEASE PLANS

Your Hough Distributor offers the widest choice of financing plans: TIME PAYMENT . . . LEASING PLANS*, with or without OPTION TO PURCHASE — whatever one best fits your needs for the purchase of "PAYLOADER" units. See him today.

Modern Materials Handling Equipment

THE FRANK G. HOUGH CO.

LIBERTYVILLE, ILLINOIS

SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

*Available in Continental U. S. A.

THE FRANK G. HOUGH CO.

710 Sunnyside Ave., Libertyville, Ill.

Send more data on 4-wheel-drive "PAYLOADER" tractor-shovels as checked:

- ☐ HO—9,000 lb. carry cap. (1 to 4 cu. yd. buckets)
- ☐ HH—7,000 lb. carry cap. (⅝ to 3½ cu. yd. buckets)
- ☐ HU—5,000 lb. carry cap. (½ to 2½ cu. yd. buckets)

Name.....

Title.....

Company.....

Street.....

City.....State.....

4-B-1

There Is A Spot LINDSAY PORTABLE Gaso Eng Air AIR COMPRESSOR *In Your Operations*

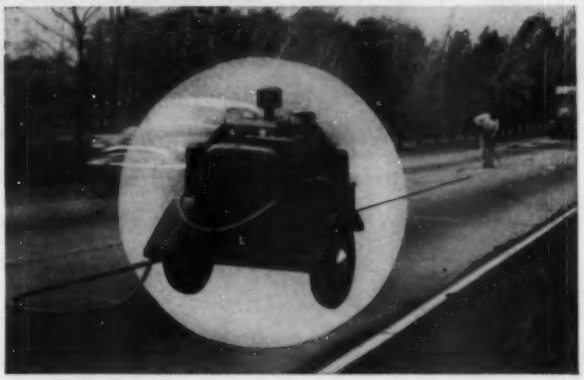
For a LINDSAY *Portable*
RADIAL TYPE AIR COMPRESSOR

Because . . .

★ They are truly portable
★ Light in weight
★ Low in original cost
★ Low in operating costs

The one unit, direct drive design of Lindsay Compressors results in the construction of rugged, compact machines easy to operate and maintain. They may be moved by one man or towed at regular automobile speeds.

LINDSAY BUILDS RADIAL TYPE AIR COMPRESSORS from 55 c.f.m. to 125 c.f.m.
Smaller Models from 5 to 30 c.f.m.



A Lindsay Model 125 furnishes all the air needed to repair expansion joints on the 100 mile long Wilbur Cross Highway in Connecticut.

P. K. LINDSAY CO., INC.
Deerfield, New Hampshire
Everett 49, Mass.

Where you want **nothing** to grow

SS WEED-KILLER

Gets them *fast*
Gets them *all*
Keeps them *off*

Dolge SS WEED-KILLER is deadly to any weed it hits. After one thorough application of this potent soil-sterilant, unwanted plant life can't even get started through the growing season. . . . Safeguards parking lots, terraces, drives, walks, gutters, sand traps, courts, tracks and other areas against ruinous growth. . . .

Reduces fire hazard by eliminating flammable vegetation close to industrial locations. . . . Finishes such hardy pests as poison ivy, wild honeysuckle, bindweed, crabgrass. . . . Cuts ground maintenance costs drastically. . . . One gallon of SS WEED-KILLER in solution treats 1250 square feet on the average.

Write for free, up-to-the-minute booklet on weed control. See your Dolge Service Man

operadable DOLGE WESTPORT, CONNECTICUT

SUPER DELAVAUD

The First Name In CAST IRON PIPE

Tested from every angle to assure more long years of trouble free service.

FOR WATER, GAS and SEWAGE

In modern long lengths—Bell and Spigot, roll-on-mechanical joint and flanged.

- Chemical Test
- Wall Thickness Test
- Talbot Strip Test
- Pipe Ring Compression Test
- Sand Compression Test
- Rickwell Hardness Test
- External Impact Test
- Internal Pressure Bursting Test

ALABAMA PIPE COMPANY

General Offices—ANNISTON, ALABAMA

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122 South Michigan Ave. Chicago 3, Illinois
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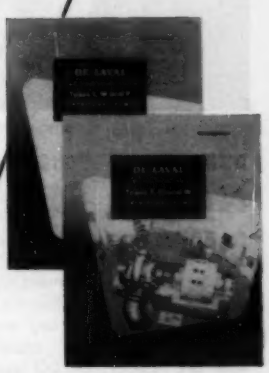
For The Best Connection You'll Ever Make

Investigate The New ALTITE JOINT by APCO
Underwriters Approved and Patent Applied For.

DE LAVAL *water works pumps play a vital community role in...*

Trenton . . . Naturally we are proud of our own water works. The De Laval Steam Turbine Company has been a vital part of the Trenton community since 1901. So for the first ad in this new series, we have chosen our rapidly expanding "home town" to illustrate the role De Laval pumps play in water works all over America.

Today, in fact, the great majority of American cities use De Laval centrifugal pumps. Their design and manufacture are the result of more than 57 years of experience. Units ranging up to 100 million gallons per day are available to meet all water works requirements.



Write for your copies of De Laval Bulletins 1004 and 1005 giving data on these pumps

DE LAVAL *Centrifugal Pumps*

DE LAVAL STEAM TURBINE COMPANY

866 *Nottingham Way, Trenton 2, New Jersey*

DL994

Three Rust-Oleum DIFFERENCES

FOR MEN ON THE MOVE... in a hurry

TOLEDO®

DROP HEAD RATCHET TOOLS

Furnished in three sizes, from ⅛" to 2" capacity, the TOLEDO Drop Head Pipe Threader offers light, handy threaders for all-round work. Ideal for close corners, tiresome overhead threading, wherever time means money. Thousands of these handy threading tools attest to their value and popularity. Dies are changed in seconds by simply pulling a pawl—the die drops out. Slip in another and you are ready to go. If you haven't tried the TOLEDO Ratchet Threader, see one at your supply house . . . next trip.

THE TOLEDO PIPE THREADING MACHINE CO.
Toledo 4, Ohio

Send for Bulletin No. 4

BUILT RIGHT—PRICED RIGHT

No. 22 VISE

For quality at a low, low price the TOLEDO 22 is best. Solid, dependable, timesaving . . . its Acme threads insure long wear. For a more positive grip, use the TOLEDO 25. Its five jaws eliminate any torque slippage. ⅛" to 4½" capacity. Both are typical TOLEDO quality tools.

BUILDERS OF THE WORLD'S FINEST PIPE TOOLS

TOLEDO®

PIPE THREADERS • PIPE WRENCHES • PIPE MACHINES

You name the place

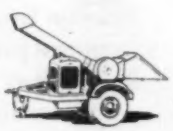
. . . and *without obligation to you*, a qualified representative will arrange a prompt demonstration of the fastest, most economical chipper in the world.

Then you can see for yourself how aggressive is the new power unit of ASPLUNDH CHIPPERS; how it hungers for great loads of bulky brush; how easily it consumes limbs of 6" diameter.

And remember, the efficiency and economy of the completely safe, simply designed ASPLUNDH CHIPPER has been *proven in service* by the largest tree company in the world.

You will see, in demonstration, that an ASPLUNDH CHIPPER is, by far, the best buy in chippers on the market today.

WRITE TODAY for FREE illustrated folder and for a demonstration.



ASPLUNDH CHIPPER COMPANY
505 York Road, Jenkintown, Pa.
By Actual Test the Fastest Chipper Made

Auditorium dome erected in 9 days

Three Rust-Oleum DIFFERENCES that save you time, money and metal!

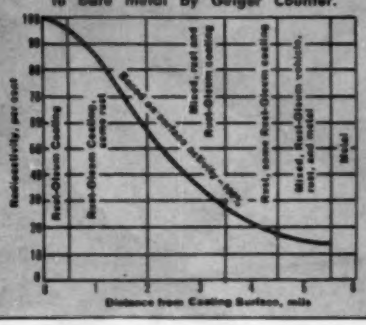
GOES ON FASTER

No tedious surface preparations usually required — just scrape and wirebrush to remove rust scale and loose rust — then brush Rust-Oleum 769 Damp-Proof Red Primer right over the remaining rust.

STOPS RUST

Rust-Oleum's *specially-processed* fish oil vehicle works down through the rust into the tiny, microscopic pits in the bare metal where it drives out air and moisture to *stop rust.*

Chart shows results of tracing radio-activated Rust-Oleum through rust to bare metal by Geiger Counter.



LASTS LONGER

Applied over rust, Rust-Oleum lasts longer for the *over-the-years protection* you need. It resists sun, salt water, salt air, fumes, heat, humidity, moisture, weathering.

These are just a few of many important *differences* that separate Rust-Oleum from ordinary coatings. When you consider that Rust-Oleum covers approximately *30% more area,* depending upon surface condition and porosity . . . and the fact that Rust-Oleum finish coatings, with the same fish oil vehicle, are available in nearly every color for *double protection* . . . it's just good, common sense to use Rust-Oleum. Prompt delivery from Industrial Distributor stocks. Write for illustrated literature with color charts.

RUST-OLEUM®

STOPS RUST!®

Rust-Oleum is distinctive as your own fingerprint. Accept no substitute.

ATTACH TO YOUR LETTERHEAD — MAIL TODAY

Rust-Oleum Corporation
2689 Oakton Street • Evanston, Illinois

- ☐ Complete literature with color charts.
- ☐ 30-page report on Rust-Oleum penetration.
- ☐ Nearest source of supply.

Rust-Oleum and Stops Rust are brand names and registered trademarks of the Rust-Oleum Corporation.

Auditorium dome erected in 9 days by a 5-man crew

John J. Kane Hospital, Allegheny County, Pittsburgh, Pa. Auditorium is 109 feet in diameter, seats 682 people.

This auditorium dome for the John J. Kane Hospital went up in a hurry. Four workmen and one superintendent, using one crane with a 125-foot boom, erected the steel work in 9 days.

In preparation for the dome erection, a 20-inch pipe pole with a 48-inch diameter plate top was erected and plumbed. The spider or top section of the dome, which is about 11 feet in diameter, was then placed on top of the pole and bolted down.

The USS Structural Steel ribs were prefabricated on a 53'-7½" radius. They were made in two sections and were field-welded to form one rib almost 80 feet long, depending on the base elevation. The first rib was erected on the west side, followed by one on the east side. Erection then continued clockwise from both points.

The horizontal structural members were bolted in as erection progressed. Most of the bracing was omitted during erection and was filled in by the detail gang later on.

All sections were prefabricated in the plant of the Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

QUICK DELIVERIES! Recent expansion of production facilities assures quick deliveries and continuing availability of Steel Shapes and Plates to accommodate the increasing demands of the Construction Industry. Just call the nearest office of United States Steel. The telephone number is listed in local directories.

For your copy of "Hot Rolled Carbon Steel Shapes and Plates," a handbook containing details, dimensions and weights of USS Shapes and Plates—write to United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

USS is a registered trademark

using USS Structural Steel

Auditorium dome fabricated from USS Structural Steel, erected by Adams Steel Erection, Kittanning, Pa. • Contractors: Sherry-Richards, Chicago, Ill. • Architects: Button and McLean—Mitchell and Ritchey, Pittsburgh, Pa. • Resident Engineer: Harry King, Allegheny County • Structural Engineers: L. W. Cook—R. A. Zorn, Pittsburgh, Pa.

United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel Division—San Francisco
Tennessee Coal & Iron—Fairfield, Ala.
United States Steel Supply—Warehouse Distributors
United States Steel Export Company

United States Steel

Economy-priced INTERNATIONAL cab-forward models give you short 89-inch bumper-to-back-of-cab dimension for greater ease of handling. All have more powerful six-cylinder engines. Four-wheel, six-wheel and all-wheel-drive models range from 9,000 to 33,000 lbs. GVW in the world's most complete truck line.

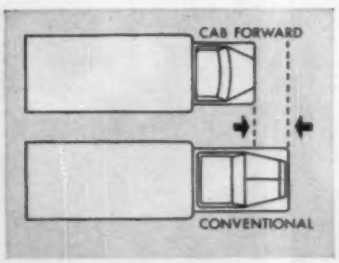
Unique double-duty vehicle—the new INTERNATIONAL Travelette.® Seats six big men comfortably in two full width seats. Hauls up to a full ton payload in the all-steel 6-ft. pickup body. Service-utility body and four-wheel-drive models available.

INTERNATIONAL TRUCKS

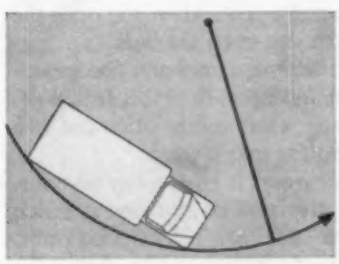
More for the taxpayer's dollar

Just one reason municipalities find International Trucks cost least to own!

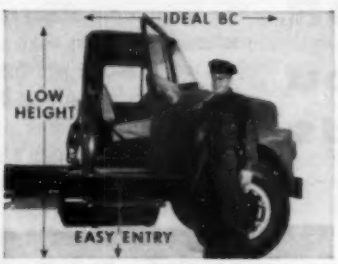
Low first cost. INTERNATIONAL cab-forward trucks are priced down with the lowest and quality-built throughout.



Cab-forward design permits the same payload in sixteen inches less overall length than conventional-cab units.

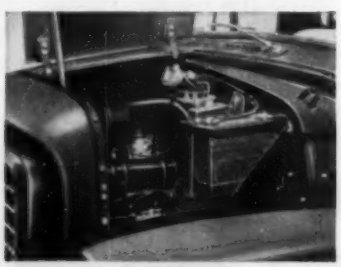


Easier, smoother handling anywhere due to short turning circle, overall clearance and minimum front overhang.



Most convenience. Cab roof is only 3¼ in. higher than conventional models. Low step. Better all-around vision.

Lively, low-cost performance. Popular six-cylinder engines offer more usable power with fuel-saving economy.



Save service time and money. Large side-opening hood for complete access to engine compartment and components.

Your community gets more "value received" when you buy new cab-forward INTERNATIONAL Trucks.

These trucks are short in length—with the ruggedness and job efficiency that have kept INTERNATIONAL first in heavy-duty sales for 26 straight years. They're dependable on all kinds of work and in all kinds of weather. They turn in shorter circles—park in less space. The driver has a better view and an easier job at the wheel.

Best of all, *they save you money.* Purchase price is low. Operating and maintenance costs stay low as the mileage piles up.

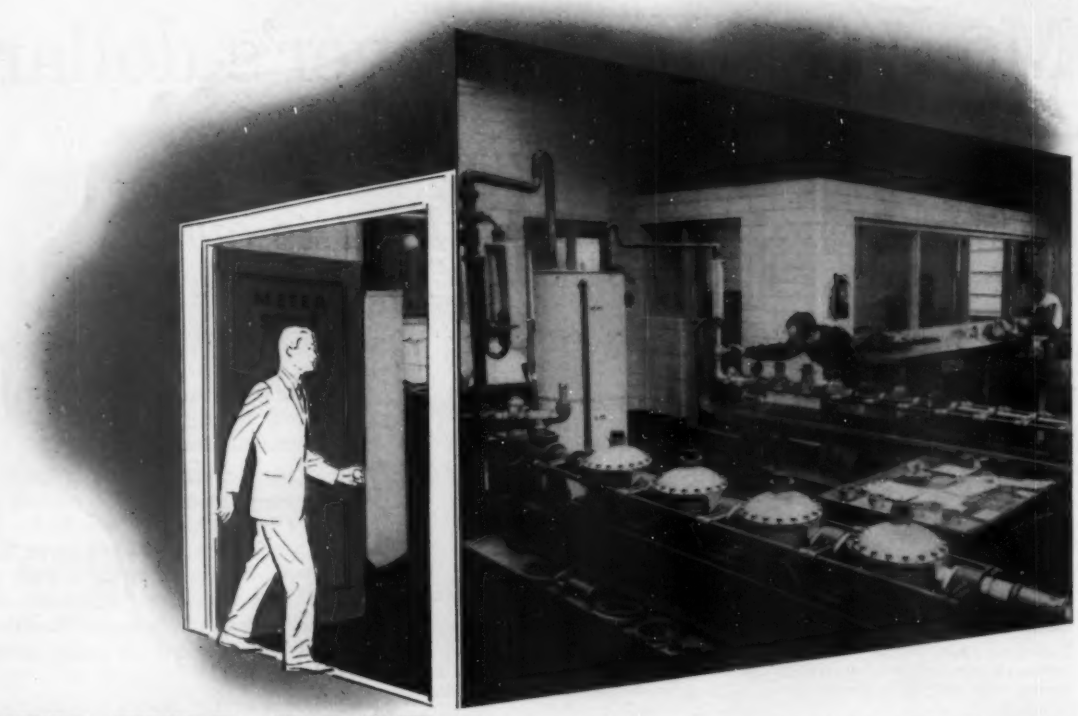
These are no empty statements. Cost records *prove* that INTERNATIONAL Trucks cost *least* to own.* Your INTERNATIONAL Dealer will give you complete details and specify the right models for your job from the world's most complete truck line. Why not see him soon?

**Signed statements in our files, from fleet operators throughout the U. S., back up this statement.*

cost least to own!

INTERNATIONAL HARVESTER COMPANY, CHICAGO

Motor Trucks • Crawler Tractors
Construction Equipment • McCormick® Farm Equipment and Farmall® Tractors



OPEN THIS DOOR

before you open the bids

You learn more about true meter costs when you open the meters for repairs than when you open the bids.

A water meter is a fine instrument, and any fine instrument loses accuracy as it wears. Because of this fact, written between the lines of any water meter price are two items of cost you can't read for many years.

First, as a meter loses accuracy, it gives away revenue. Before its first overhaul it may give away twice as much money as it "seems" to save in its low-bid original price.

Secondly, to keep the meter accurate you may have higher repair costs over the years . . . or premature scrap-and-repair programs. Good meters often vary widely in this respect.

Water is your city's most vital service. You entrust it to the accuracy of your meters. Before you buy, walk into your meter shop. Talk to the men whose efforts guard your water supply. Ask which meter gives highest sustained revenue . . . with lowest repair and depreciation costs.

We sincerely believe the answer will be "Trident."

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TRIDENT WATER METERS

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APRIL 1958 The American City

Water Works Switches Power Source

. . . in $2.5 million rehabilitation project

By S. G. FERRIS, *Water Superintendent, Grand Rapids, Mich.*

STEAM power has all but disappeared from Grand Rapids' Coldbrook Station. Gone are the vertical steam pumping engines, and steam turbine-driven pumps. All that remains is one steam-driven pump, together with adequate steam capacity, for heating and possible emergency use. The revamped station now houses modern electric motor-driven pumps, banks of electrical control panels and switch gear, and the latest in instrumentation. This drastic change in the Coldbrook Station offers visible evidence of the modernization program that touched all phases of our water department other than raw water supply.

Service Maintained

The need for maintaining full water service, while completely replacing or improving existing pumping and filtration facilities, necessitated a program of extreme complexity. Fortunately the filtration plant consists of two units, the south plant and the north plant, located on a single site. Either plant can supply the city during the winter months, so work was scheduled accordingly.

Modernization Began

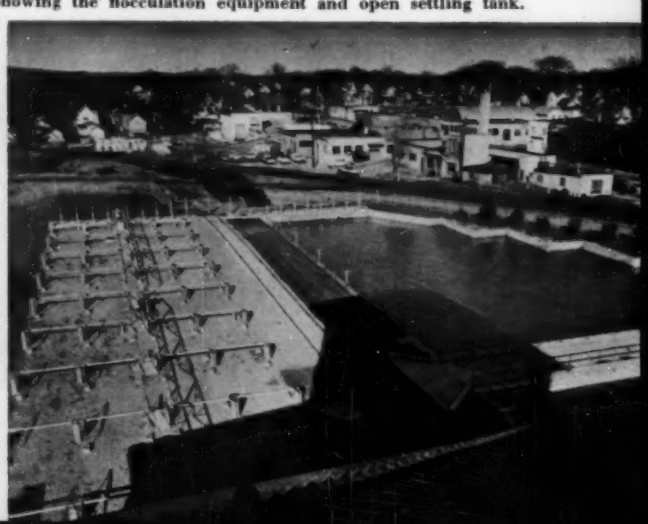
We modernized the south plant first, starting late in October 1956 and completing the work by mid-February 1957. By May of 1957 the north plant was also completed. The original baffling walls in the mixing and settling basins were removed and the water was rerouted in order to give the desired retention time for settling and to eliminate a serious head loss that existed in the old plant.

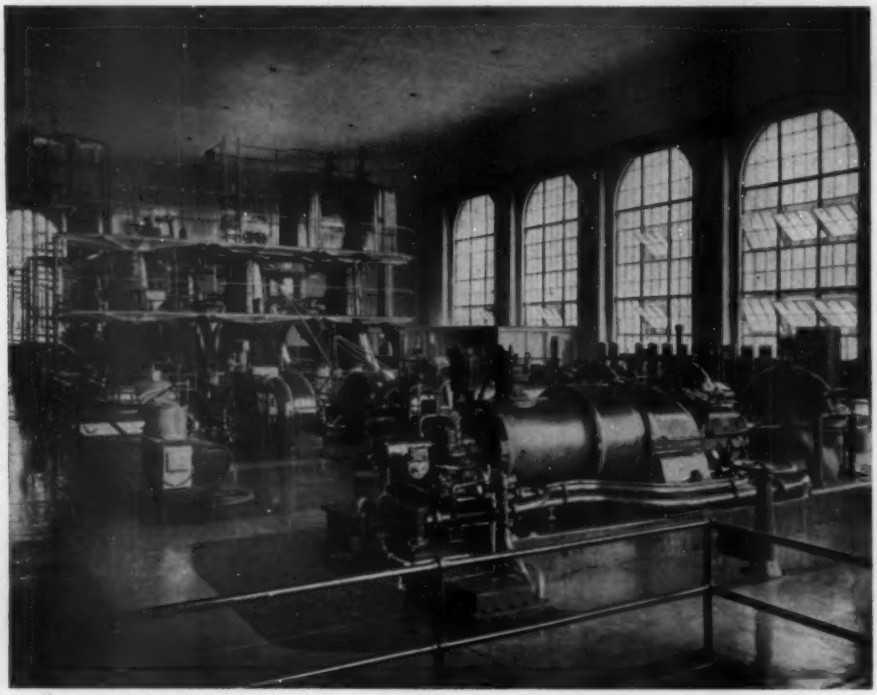
The new Mixing Equipment Company, Inc. rapid chemical mixers and Stuart walking beam flocculation equipment replace the function of the former baffles without head loss. These improvements allow a much clearer water to reach the filters, which in turn, has increased the efficiency of the filters. The modernization work at the filtration plant resulted in the Michigan State Health

The distribution system is improved by erection of two 1.25-mg elevated tanks.

Completely revamped pipe gallery at today's Coldbrook Station permits easy access to all valves, meters and pipelines.

A view of the modernized north basin at the filtration plant showing the flocculation equipment and open settling tank.





Grand Rapid's switch from steam to electric power resulted in Coldbrook Station's complete modernization. (Left) the station in 1955 and (right), its appearance today.

Department increasing the plant capacity rating from 44 mgd to 66 mgd.

The program also included construction of a chlorine and sulphur dioxide storage and weighing room. Six new Series A-711 Wallace & Tiernan V-notch chlorinators, together with a series of chlorine distributor heads, can be used for either pre- or post-chlorination in either plant. We converted two of the existing chlorinators to sulphonators for the sulphur dioxide feed.

Additional work included the installation of new filter bottoms in those filters needing repairs and Palmer surface wash equipment in 12 of the 22 filters. We plan on installing surface wash equipment in the remaining 10 filters next fall.

Water System Nerve Center

In its modernized form, Coldbrook Station serves as the nerve center of the water system. Station personnel control all operations, and maintain contact with the raw water pump station at Lake Michigan by radio and with the filtration plant by radio and leased wire. In addition, the new Westinghouse supervisory control system permits the starting and stopping of all pumps in the six booster stations and Bristol instruments record the water flow and pressure at each booster station plus the water level in each reservoir and in each elevated tank in the plant.

Five Worthington centrifugal pumps, powered by Electric Machinery motors, replaced four of the five existing steam-driven units. Four have ratings of 25 mgd each and the fifth has a rating of 10 mgd. When operating in parallel, they have a total capacity of 75 mgd; 40 mgd to the low-pressure system and 35 mgd to the high-pressure system.

Loop Header Installed

In place of the old suction well, we now have a 60-inch sectionalized loop header connected to the 48-inch and 60-inch conduits that bring water from the filtration plant. These conduits were cleaned and repaired to gain maximum flow.

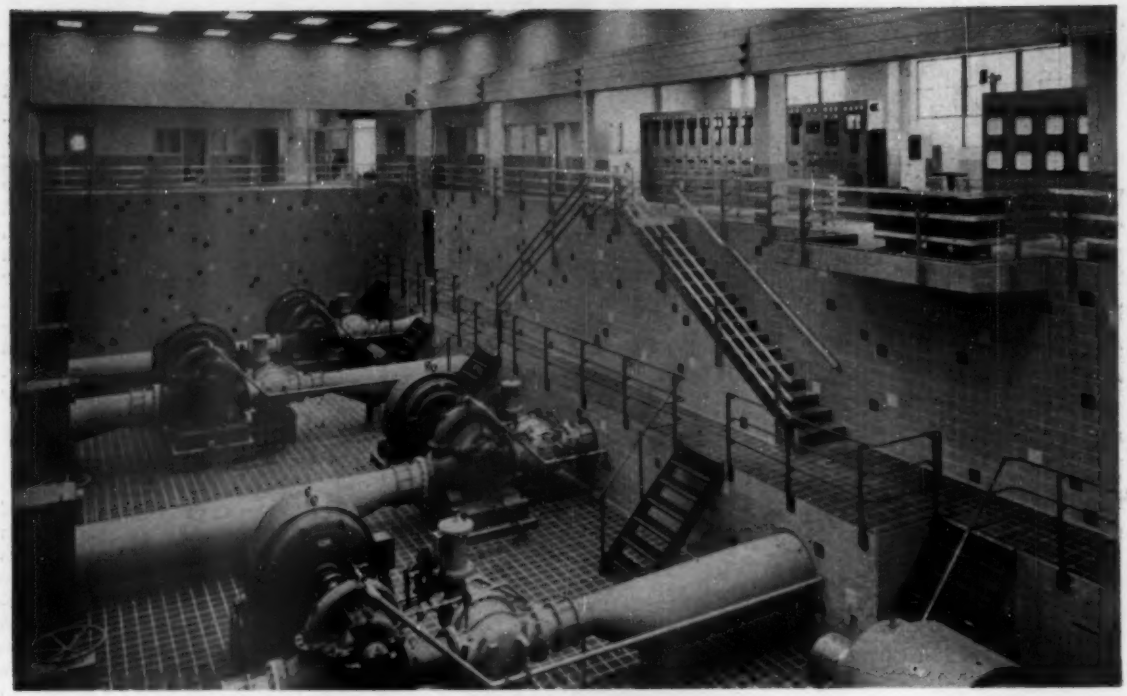
All pumps discharge into the existing 48-inch mains in the Coldbrook Street Gallery and an S. Morgan Smith cone bypass valve, controlled from the station operating floor, provides close control of the flow in the two pressure systems. A surge relief system protects the supply header and conduits, and the pump discharge lines and mains from damage due to sudden pressure surges.

Not only is the equipment new and modern, but so is the interior of the station which now has tiled floor and walls and an accoustical ceiling. Precautionary measures taken to guard the pump area against flooding, include poured-concrete walls surrounding the pump floor, water-tight doors, and all steel piping. An existing 25-foot diameter basin in the basement, once used as a cooling water well, now serves as a pumping basin for two 5,000 gpm and one 100 gpm Peerless sump pumps. The small pump handles normal drainage and the large ones will take over in case of a large flood of water either from a line break or from the outside.

This project also required two phases of construction to maintain uninterrupted service. Phase one got under way in October 1956 and consisted of removing the old vertical pumping engines, installing several of the new pumps, and putting in most of the 60-inch header loop. By May 1957 this new equipment could take over the load and the rest of the work was handled as phase two.

New Power Source

In March 1955 city personnel made a study on the feasibility and economics of changing the city's main power supply for water service, general city service and street lighting from that generated at Coldbrook Station to power purchased from the Consumers Power Company. The latter proved to be most advantageous, so we constructed a 2,400-volt outdoor substation at Coldbrook in



conjunction with and adjacent to a new transformer station erected by the Consumers Power Company to supply the city's power requirements.

The General Electric control boards within the station contain the hydraulic gauges and recorders for pumping control and all of the equipment required to provide automatic starting of the pumps. The turn of a handle on the board puts a pump into service. All necessary functions are automatically performed in proper sequence and in proper time by means of electrical relays and timers.

Additional substations were constructed at the filtration plant and booster stations, with two sources of power supplied to the filter plant to minimize the possibility of an extended power outage. Two new unit substations were erected within the filter plant for load distribution.

Distribution Improvements

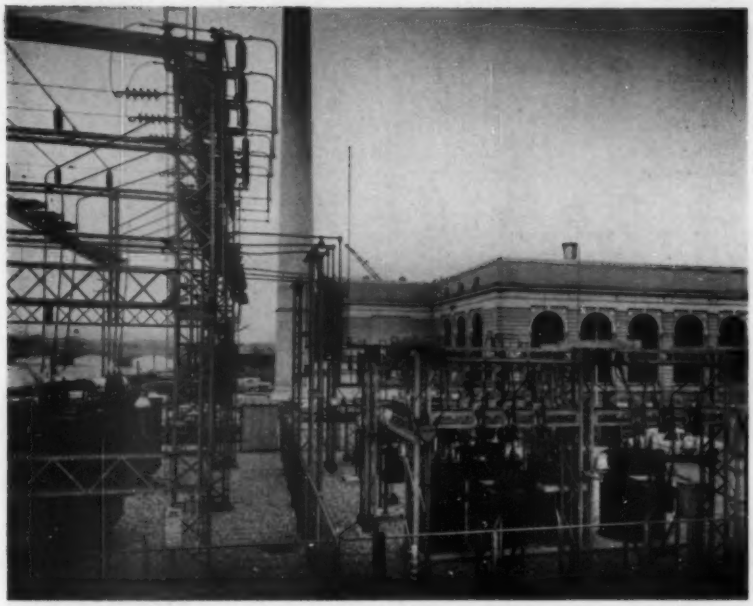
Prior to this modernization program we operated four booster stations. A fifth booster station had been abandoned. We also operated three reservoirs whose capacities were 16,000,000 and 8,000,000 gallons, respectively. One, having no booster pumps, was of little value in meeting day-to-day water demand.

Two elevated tanks were in service. One had a capacity of 892,000 gallons and the other held 400,000 gallons. Two ground storage tanks each held 1,600,000 gallons but were too low in elevation to provide adequate pressures in their service areas and therefore, were abandoned. One of the elevated tanks, erected in 1909, is severely corroded and for this reason has not been used for the past two years. It will be razed in the future.

To improve pressure in the northeast section, we installed three Wheeler-Economy pumps in the valve chamber of one 16,000,000-gallon reservoir—one of 3 mgd capacity and two of 5 mgd capacity. Also, we added new mains connecting the pumps to the distribution system and constructed a 1,250,000-gallon Chicago Bridge & Iron elevated tank on a hill to equalize pressures in the area.

By reactivating the abandoned booster station, we stepped up pres-

Overhauling the main station and booster controls meant the installation of new control panels and instrument boards.



All electric current enters Coldbrook Station from the outdoor substation shown here via lead covered cables located in underground ducts made of concrete.

sures in the east section of the city. Here we installed three Wheeler-Economy pumps of 0.75-, 1.0-, and 1.5-mgd capacity and replaced all station piping.

By replacing the low-pressure pumps in the booster station serving the second 16-mgd reservoir, we improved service in the southeast portion of the city. The replacement pumps are 14 mgd Worthington vertical centrifugal pumps previously removed from another station and two new Worthington vertical centrifugal units of 6- and 10-mgd capacity. The installation of feeder mains and a second 1,250,000-gallon Chicago Bridge & Iron elevated tank completed the project.

Additions at the booster station serving the 8-mgd reservoir consisted of one additional 5-mgd Wheeler-Economy pump.

Considerable study preceded actual construction work. City personnel, under the direction of City Manager Donald M. Oakes made a study of the water distribution system at the request of the City Commission and submitted their report on August 12, 1955. William M. Wallace and Douglas Feben of the Detroit Water Department, at the request of the City Commission, gave their recommendations as to the modernization of the filtration system in a report that they submitted on December 1, 1955.

Action Taken

Acting on the recommendations of these reports, the City Commission directed City Manager Don M. Oakes to undertake the construction of the necessary improvements. The Commission also engaged J. & G. Daverman Company, Architects and Engineers of Grand Rapids, to prepare plans and specifications for, and to supervise, the construction of the work.

Funds for the modernization program came from available department funds and a $2 million revenue bond issue. We anticipate amortizing these bonds without increasing our water rates.

The work was done under the administration of Mayor Paul G. Goebel.

Paver Provides Surface Reservoir Sidewalls

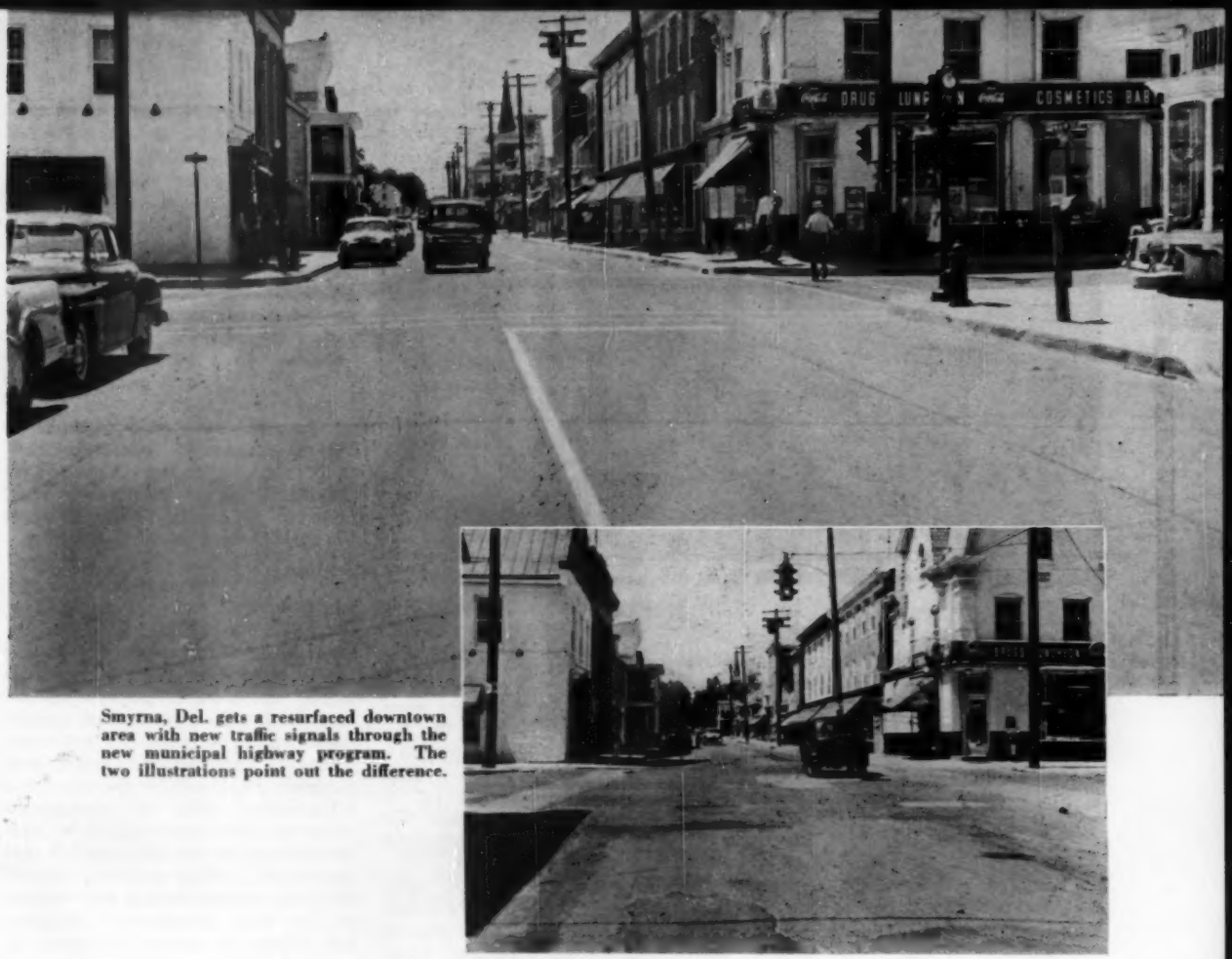
AN asphalt paving machine made water works history in El Centro, Calif., recently when it placed the 4-inch surfacing to the city's new water reservior sidewalls. The reservoir holds 45,000,000 gallons. Its sidewalls has a 2:1 slope.

The contractor used a Blaw-Knox PF-90 bituminous paver-finisher to place the surfacing on the walls. The bituminous-coated slopes were first rolled with the front-wheel assembly from a tandem roller, pulled by a cable control unit on a tractor at the top of the reservoir. The finisher was then stripped to allow only full use of the screed arms, screed and tamper assembly. A separate engine was installed to drive the tamper.

A winch installed at the top of the reservoir pulled the paver up the slope. A crane with a clamshell bucket dumped the asphalt mix in front of the paver.

This stripped-down paver had no difficulty negotiating the 2:1 side slopes of the 45,000,000-gallon El Centro reservoir.

A truck crane kept the paver supplied with bituminous material while a winch at the top pulled paver up the slope.



Smyrna, Del. gets a resurfaced downtown area with new traffic signals through the new municipal highway program. The two illustrations point out the difference.

Delaware's 60-40 Urban Street Program

New Municipal Street Fund Law provides approximately one cent per gallon gas-tax funds for urban streets

By R. A. HABER
Chief Engineer
Delaware State
Highway Department
Dover, Del.

WITH the passage of Delaware's Municipal Street Aid Fund Law, and the first distribution of money to 51 municipalities, a historical precedent has been set in the state. The old, world-wide complaint of taxation without direct benefit is no longer quite so valid in Delaware.

In addition, the function of the Delaware State Highway Department in the research, planning and formulation of the new law is an interesting example of the use of the state department in an advisory capacity affecting local municipalities.

The Delaware State Highway Department was formed on May 10, 1917, but the first gasoline tax of 1c a gallon was not levied until 1923. At this time the state had 354 miles of paved highways to maintain and many more in the planning stage. The tax was increased the following year to 2c a gallon. The state levy rose with need to its current 5c.

However, for many years, the money appropriated to the State Highway Department bore no direct relationship to the amount of fuel tax revenue the state collected. Unlike some other states, Delaware has not alloted its fuel tax revenue directly to the Highway Department since 1941. The money goes into the General Fund from which the Legislature appropriates money to the department.

Municipalities in the state did not receive any direct share of the fuel tax income either. However, by negotiation and agreement with the State Highway Department, towns and cities have certain streets maintained by the state. This was the only form of state aid for this purpose.

The money that now goes to the

A Hi-Way chip spreader starts shoulder work with street-aid funds in Harrington.

incorporated towns and cities comes from the General Fund, and current legislation sets the total at no more than $1,200,000 each year. This figure is roughly the equivalent of 1c of the gasoline tax in the year 1956.

Property Assessment Formula

In 1956 the Mayor's Committee of the state first put together a formula designed to benefit municipalities in the construction and maintenance of their streets. It was known as the ***Newport Plan,*** since it originated with the city government of that town.

The first formula was based on the assessment value of property within each municipality. It provided that each municipality would receive from the total fund the proportion its assessed valuation bore to the assessed valuation of all other municipalities in the state.

It can be readily seen that the larger the city, the better its position. Not taken into consideration in this formula was the fact that there are several towns in the state which have all streets maintained by the State Highway Department. Nine of the incorporated communities have more than 70% of their streets maintained by the state.

While neither the Legislature nor the highway department, as an advisory unit to the State Treasurer in this case, had any objection to the purpose of the plan, there was some objection to the formula as being essentially unfair and hastily devised.

The State Highway Department acted only in an advisory capacity since the money to be appropriated was over the department budget.

Besides being weighted in favor of the larger towns, the assessment formula of the Newport Plan was manifestly unfair (and perhaps not even workable in time) because the assessment base used in the counties and towns is not standard. This might very well have meant that in time various towns would raise the assessment base to get an increased share of the Street Aid Fund.

Another factor affecting the planning is that the population of incorporated communities ranges from a low of 85 to a high of 110,356. Total street mileages vary from 0.87 miles to 174 miles. Again, in some cases, 100% of the street mileage is maintained by the state, or, as in ***Wilmington,*** the state maintains only 12.08%.

Other variable factors which had to be considered include requirements and cost for such service as policing, street cleaning, street lighting and traffic control devices.

Two Basic Factors

Once these important variables were taken into consideration it was clear that certain costs to the towns depend to some extent on two important factors: (1) *the population being served,* and (2) *the mileage of streets which must be maintained by the town.*

Therefore, both of these factors were used in the formula designed for distribution of the money.

60-40 Proportion

The percentages assigned to each factor are themselves based on a fair return for all communities, regardless of size.

It was recommended by the department, and written into the present law, that 60% of the funds available be distributed in the proportion to the mileage of streets not maintained by the state with the total mileage of streets, not state-maintained, in all incorporated communities.

It was recommended, and approved, that the remaining 40% be distributed in the proportion to the population of all the community with the total population of all incorporated communities.

Comparison with Prior Plan

Using this formula, it is interesting to note some comparisons with the Newport Plan assessment formula which show clearly why the majority of the municipalities were favorable to the 40-60 formula.

Of the 51 incorporated communities in the state, 45 received more money under the 60-40 formula than they would have under the Newport Plan. Only six received less money. It is obvious, of course, that the larger towns with larger populations would have the highest assessment value. They received less money. For instance, under the Newport Plan assessment formula, Wilmington, with an assessment value of over $286 million, would have received $761,397 out of the total fund of $1.2 million. Under the 60-40 formula, taking into consideration both population (110,356) and mileage of streets for which it received no state aid (153), Wilmington actually got $551,425.88.

However, let us look at the situation of ***Laurel,*** which is largely an agricultural community and thus has a relatively low assessment value when compared to the more industrial cities to the north. However, its street needs are greater than its assessment value would indicate.

Laurel would have received under the Newport Plan approximately $7,576, based on an assessment value of $2,847,000. Under the present Municipal Street Aid Fund Law, Laurel actually received $22,937.22, three times as much.

To carry the comparison further, note that Wilmington maintains without state aid approximately 153 miles of streets while Laurel maintains 9.2 miles. For them to receive proportionate money relative to street mileage under the assessment formula, Laurel's assessment valuation would have had to rise to over $17,000,000 from its actual $2,847,000.

Another interesting comparison is made between the average annual expenditure for street construction and maintenance by the various municipalities (from their own pockets,

so to speak) and the percentage of this figure now given to them from the Street Aid Fund.

The average annual disbursements for street work in the various communities is based on a three-year period: 1954, 1955, and 1956. Under the new law, 34 municipalities received money equal to more than 100% of their past annual ependitures! Some of these received considerably more than 100%, with the ***Town of Fenwick Island*** topping the list at 1388.9%. Several received as high as 400% and many well over the 100% mark. Thirty-nine municipalities received over 80% of their past annual disbursement and 48 of them received more than 50%.

Gains: "Free" Money for City Streets

All of this is "free" money, thus allowing the municipalities not only to improve streets and construct new ones (which would be added in figuring the formula the following year) but to take much-needed town money and put it to other uses formerly not permitted by a limited budget.

Under the new law, the population figures were set by amendment as those showing in the 1950 census. While this undoubtedly permits some inequities to creep in, it was a necessary step since the verification of independent census figures might become an impossibility. Whatever unfairness which might now exist will be eliminated with the new census.

It was of course necessary that certain administrative procedures and controls over the expenditure of the fund be required. The State Treasurer's office, which administers the fund, gets its figures on the amount to be given each community from the State Highway Department. The department determines the amount by knowing the population factor and an actual verification, if necessary, of the mileage of streets maintained without state aid.

The State Treasurer, pursuant to the requirements of the law, stipulates that each municipality shall keep all funds received under the law in a separate fund designated as the Municipal Street Aid Fund.

Funds Purpose Earmarked

The purpose for which the funds may be spent are also outlined in the law:

Under the 40% population factor the funds accruing to the town shall be used for street improvements, including expenses for maintaining and lighting of streets and acquisition of cars and other equipment for law enforcement. A certain proportion of police and maintenance salaries may be paid from the fund. Also, the money may be used for the purchase of rights-of-way for new streets and for improvement and maintenance of them.

Under the 60% mileage factor those funds available shall be used for street improvements, including their maintenance, for the payment of principal and interest on any bonds issued for street improvements and for the purchase and repair of street construction and maintenance equipment.

Annual Municipal Reports Required

The law further requires of the participating communities that:

Each municipality shall annually assure the State Treasurer that the municipal treasurer is bonded.

Each municipality shall submit an annual report to the State Treasurer showing expenditure from the Fund.

All contracts let for street improvements shall conform to State Highway Department specifications and before June 15 of each year each municipality must file with the State Highway Department its population (to take effect after June, 1958) and the length of usable streets.

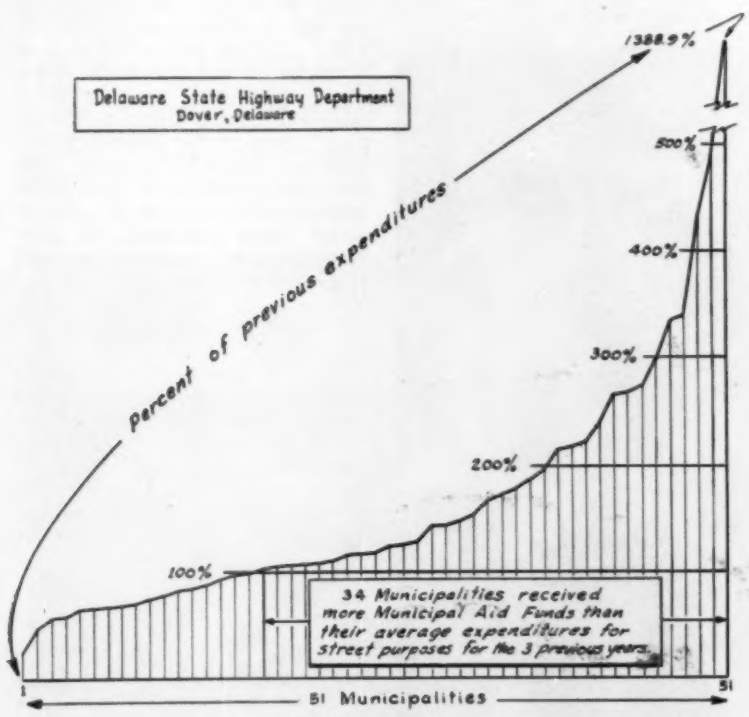
In the event that a municipality doesn't tender the information, the Highway Department and the Treasurer may use the most recent and acceptable figures.

There is, of course, the provision that any municipal officer who spends the money for an unauthorized purpose is personally liable for the amount spent.

Results to Date

For a law of such widespread effect and complexity, the planning and negotiations were conducted with a minimum of fuss and bother. This is the first year of operation of the fund and so no annual reports are yet prepared. However, it is known that much seriously needed work in the various communities is under way.

As a result of Delaware's Municipal Street Aid Fund Law a new function is added to the already complex and vital functions of the State Highway Department. Year by year, from its beginning more than 40 years ago, the department affects the welfare of more and more individuals in the state's rapidly growing population.



This chart shows that of 51 municipalities in Delaware, 34 got more money from the street-aid fund than they appropriated yearly for streets in the past three years.

As a 5- to 8-ton Huber roller works one side of the street a Barber-Greene paver lays the wearing surface on the other side.

Albany, Ore.

Small city engineering department successfully meets challenge of a major sewer and street paving project

By DANIEL J. LEE, *City Engineer*

Dick Dalke, assistant to the engineer (left) and Chief of Party Oliver Payton played a vital role in Albany's construction program. The new Wild T-16 transit helped speed field work on the projects.

WHEN we first began planning Albany's 1957 improvement program, nobody realized it would grow into the biggest this city had ever experienced. Albany, a city of 20,000 persons, is situated in the productive Willamette Valley of western Oregon. Two large metal processing plants, a pulp and paper plant, lumber mills, plywood plants, furniture factories, several food-processing concerns and many other assorted activities make up our economy. These industries and their growth set the stage for our 1957 improvement program.

27 Street Projects

When I came to Albany as City Engineer in October 1956, many projects were under consideration for the 1957 season. Facing the challenge and responsibilities of a growing community, the Council and City Manager William D. Bollman reviewed and initiated one project

tial streets; 10 inches for arterial streets.

- Leveling course thickness: 1 inch

the year when difficulties are encountered with an asphalt and aggregate chip seal. One disadvantage

pipe. Much of this work was done in a recently annexed area. Although only about 15% of the area

The city chose crushed rock as a base course for the first time. Bottom dump trucks hauled in base rock which was then spread and compacted by an efficient 10-12 ton Tampo rubber wheel roller.

In addition to paving over 11 miles of streets, we installed about 11 miles of sewers. Here a Unit backhoe with ¾-yard bucket excavates a trench for a 54-inch storm sewer.

Completes a Record-Breaking Year

after another until 27 separate street projects were slated to be designed. This involved over 11 miles of streets and an expenditure of about $330,000.

The street work itself offered a challenge to our engineering organization, but in addition the city undertook six separate sewer projects amounting to another $390,000 expenditure. A private engineering firm designed about $100,000 of this work the rest had to be done by our staff.

In many cases ideal street design standards must yield somewhat to economic limitations. Albany is no exception, as can be pointed out by base failures in some locations and insufficient thickness of surfacing in other locations. We still have not designed the ultimate in city streets, but improvements have been made.

In past years the city used pit-run gravel for base material on the assumption that the cost of a crushed rock base would be prohibitive. This past year, however, we called for crushed rock as an alternative bid, and upon finding the cost within reason, used this material for a base course.

We also adopted the following minimum standards for street paving work:

- Base thickness: 8 inches for residen-

The contractor used a truck-towed template for shaping the road and leveling the fines in preparation for the wearing surface.

Interested members of the Ewing Township com-

tial streets; 10 inches for arterial streets.

- Leveling course thickness: 1 inch for both residential and arterial streets.
- Asphaltic concrete wearing surface: 2 inches for both arterial and residential streets.
- Seal (SS-1 black seal): 0.15 gallons per square yard for both residential and arterial streets.

One change will be made, and that is to increase the minimum wearing surface thickness from 2 to 3 inches on arterial streets.

The established crown for all streets is set at 1/80th of the width. Such a crown allows additional asphaltic concrete lifts to be made without developing excessive pitch in the traffic lanes.

Asphalt Seal

For a seal we use emulsified asphalt, SS-1, without an aggregate cover. This is cut back 100% with water in the distributor tank and the mixture applied at 0.30 gallons per square yard. The added water gives enough volume to assure that all surface voids are filled. The water then evaporates, leaving a film of asphalt over the interior of all surface voids and crevices. The so-called black seal also has the advantage of being inexpensive, and there is no chance of losing the nonskid effect of the asphaltic concrete. Then too, it can be applied late in the year when difficulties are encountered with an asphalt and aggregate chip seal. One disadvantage is that the finished pavement has a jet black appearance, but dirt and dust lighten the pavement in time.

We contract all construction work, and last year the job went to Stanton W. Payne of Eugene, Ore. He in turn sublet the curbing, paving and storm sewer work. Difficulty with coordinating the work of the various contractors resulted in completion of only 80% of the work scheduled, but we did finish the job in the built-up areas.

On some streets the contractor used a steel template that spans the roadway and rides on the gutters on 8-inch wheels to form the crown. Metal shoes ride against the vertical face of the gutters to prevent lateral shifting. A truck pulls the template by means of two pipe stiff-arms and uses an A-frame to lift the template when backing up for a repeat pass.

Difficulties encountered included a tendency to separate the coarse rock from the fines and chipping of the concrete edge by the metal shoes. I believe minor adjustments will rectify this problem. The template was developed by the contractor.

Sewer Construction

Sewer construction work included the laying of approximately 12 miles of pipe ranging from 3,800 feet of 54-inch reinforced concrete pipe to 5,000 feet of 8-inch asbestos cement pipe. Much of this work was done in a recently annexed area. Although only about 15% of the area is now served by streets, storm and sanitary sewers, we designed the storm sewer trunk to serve an ultimate area of some 350 acres and the sanitary sewer trunk to serve about 800 acres.

We used rubber-gasket joint pipe exclusively for sanitary sewers and a cement grout joint on all the storm sewer pipe.

Work Assessed

Until recently a charter provision made it mandatory that the city pay the cost of paving street intersections. It has been the city's policy in the past to shoulder the burden of storm drainage costs. The lack of funds restricted improvements.

These policies have been changed, and the city now assesses back to the property benefited all costs for streets, storm drainage, and lateral sanitary sewers. The city pays for sanitary trunk sewers by issuing general obligation sewer bonds.

We consider all engineering, legal, and administration costs on the improvements as part of the construction cost. Where appropriate, these are charged back to the assessment district on a flat percentage basis.

With this arrangement, our only restriction regarding improvements is the city's bonding capacity and the people's willingness to have the work done—and to pay for it.

Mexico Acquires Portable Electric Power Plants

ELECTRIC POWER is coming to the less populated ports of Mexico by mobile generating plants.

Five 500-kw generators, each capable of furnishing the normal power needs of a town of 2,500 people, recently have been purchased by Mexico's COMISION FEDERAL DE ELECTRICIDAD.

The mobile power plants are completely self-contained. Incorporating heavy-duty engines built for continuous output, they will be used to bring power to new areas, to help in rerouting existing power lines and systems, and to meet peaks in power needs across Mexico.

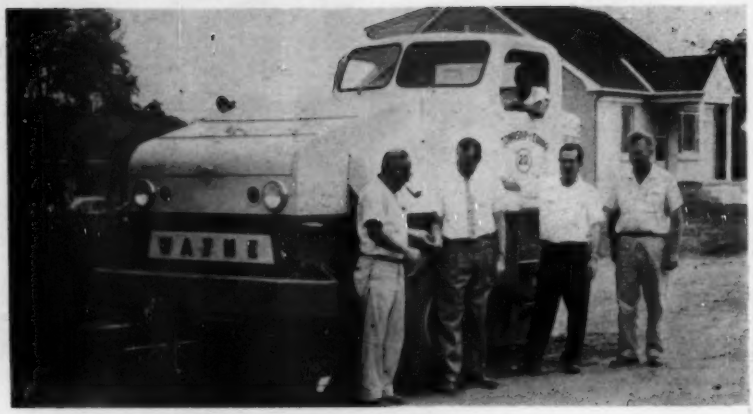
The generators are built into trailers 32 feet long, 8 feet wide, and 12½ feet high and are hauled wherever needed by White or Autocar tractors.

The heart of each set is a 755-hp Superior diesel engine operating at 900 revolutions per minute. The engines can pull continuous 500-kw load in operation to elevations above 2,500 meters (8,200 feet). Diesel fuel carried in a 280-gallon tank on the trailer powers the engine. One tank of fuel will drive each unit at capacity for a period of 12 hours.

A power plant on wheels starts on its trip to Mexico.

The units were designed with an eye to economy. All essential parts are standard production items and as such, can be mass-produced, insuring efficient economical repair and maintenance.

Interested members of the Ewing Township community confer about the all-important street sanitation program.



Ewing Township, N. J. makes tangible savings by assigning . . .

Extra Duties for the Street Sweeper

By MELVIN J. PHILLIPS
Road Supervisor
Ewing Township, N. J.

EWING Township, a fast-growing suburb of New Jersey's capital city, Trenton, mechanized its street sanitation work last year by acquiring a Wayne power sweeper with a 4-yard hopper. Since our budget does not grow as fast as the new duties we get as the township grows, we had to make the sweeper earn dividends right from the start. As nearly as we can calculate, the big sweeper has brought in an extra $7,000 in addition to performing its regular duties.

It had done most of this by giving a big assist to our street sealing work. We seal coat an average of 200,000 square yards of streets annually. This year we used the sweeper to clean the road surface prior to sealing and this speeded the work greatly. We needed only 22 days to complete the work, whereas in previous years it took all summer to clean and prepare the roads by hand. On this type of heavy cleaning we would wear out a rear broom once every four days.

It is difficult to estimate the savings on cleanup, but many contractors will include in their bid price a charge of 2½c per square yard, for an apparent savings of $5,000. We of course did the work in the past with our men, and the sweeper has freed them for other work.

The second way that the sweeper reduced our costs and speeded our work was to redistribute the aggregate and cover bare spots in the freshly-sealed roadway. We did this by putting down the front gutter broom and running the sweeper up the edge of the roadway. The broom would throw the loose stone out of the gutter to the center of the street where the traffic would have an opportunity to work it into the asphalt.

Our third saving, and the most important, was in reclaiming excess cover aggregate after the sealing work was complete. The ⅜-inch stone is expensive, and under the procedures we formerly followed, a substantial portion always was wasted. Now, the big sweeper would pick up this loose stone, load it into its 4-yard hopper and transport it back to our storage yard.

In nine working days we were able to reclaim over 560 tons of clean stone, having a value of $3.65 per ton. Thus, this operation alone saved the township over $2,000. We are using the reclaimed stone for patching and repair work.

Ewing has 89 miles of roads; of these, 10 miles have curbs. The sweeper cleans all the streets, averaging 450 miles per month. It is able to travel at relatively high speeds when the hopper is full. We had no trouble finding property owners near the sweeper routes who want the street debris to fill low lots.

During the fall, the sweeper has handled our leaf problems with ease after the rains. If the leaves are wet, the sweeper will pick them up without trouble.

All in all, the sweeper has excelled all our expectations in service.

The big sweeper discharges a hopper chock-full of leaves.

The sweeper salvaged aggregate from street-sealing work.

Portable containers conveniently placed near kitchen doors replaced the large concrete receptacles.

Detroit Educates Citizens To Improve Sanitation

Educational-enforcement technique achieves objective of proper household storage of garbage and rubbish

By JOHN H. RUSKIN, M.P.H.
Associate Sanitary Engineer
and
HUGH G. BLANDING, M.P.H.
Public Health Educator
Bureau of Sanitary Engineering
Department of Health
Detroit, Mich.

1—Citizen cooperation is essential in carrying out an administrative program for community improvement. In order to achieve this, education and enforcement must go hand in hand.

2—Notices and other printed material do achieve results but the material should be concise and well illustrated.

3—Personal contact by trained employees is extremely important.

4—All city departments involved must be aware of the role and responsibility of each in the planned program.

These four statements summarize the facts learned from our campaign to make Detroit a cleaner and healthier city. Basically, it is a rodent control program, but such a program could never succeed without proper sanitation practices with respect to storage and disposal of garbage and rubbish.

An inventory of Detroit's municipal waste problems as we found them about six years ago showed that garbage was collected almost every week, while rubbish was collected bi-weekly. Complaints of delayed collections were frequent, especially during inclement weather or in the spring cleanup period. Rubbish dumped on the ground or in open containers and improperly stored rubbish contributed to ineffectiveness in our rodent control program. The large number of improper receptacles hindered collection efficiency.

In 1952 the late Mayor Albert E. Cobo appointed a Sanitation Committee. Its members included Health Commissioner Joseph Molner, M.D.; Public Works Administrator Samuel Gentile; City Controller John Witherspoon; Chief Smoke Abatement Inspector Benjamin Linsky; Senior Police Inspector Miles Furlong; Sanitary Engineer Andrew Dempster, and several others.

An early result of sincere cooperation by committee members was the transfer of enforcement duties per-

Replacement of oil drums with 26-gallon containers cleaned up the alleys, an important factor in effective rodent control. Picture above was taken after light snow.

taining to waste receptacles from the 33-man sanitary police detail to a new 18-man section authorized in the Health Department. This change, accepted somewhat reluctantly by the Bureau of Sanitary Engineering because of the big job facing such a small crew, spurred us to find some means of increasing our coverage per man. The combined "educational-enforcement" approach which evolved from the committee multiplied our gains so dramatically that they far outweighed the reduction in manpower.

The Oil Drum Problem

The committee pinpointed the 55-gallon oil drum as the most common and troublesome illegal waste receptacle. It is sturdy and large in capacity, but there its advantages end. It provides food and harborage for rats and flies. Its open top allows burning embers to escape, and its poor design as a combustion chamber causes it to emit dense

Drums and concrete receptacles create the time consuming job of shoveling refuse.

ordinance. Some civic associations "Cleanest City Award in 1956. efforts of the health inspectors by

Placement of portable containers on a suitable rack does not interfere with the neat arrangement of the rear yard.

smoke, especially when garbage is included in the material being burned. Its weight (tare 45 to 55 pounds) creates a handling problem so that when it is filled, the contents have to be dumped onto the ground and then shoveled onto collection trucks. The remaining debris on the alley surface resulted in increased food available for rats as well as litter. Most Detroit alleys were partially obstructed by rows of oil drums.

Program Launched

In 1954 the Sanitation Committee developed a plan for removal of all oil drums which were being illegally used as waste receptacles. Since they were private property, due notice was required so that the owner could choose whether to move this drum into his yard if he did not wish to have it picked up as rubbish. These notices cited the ordinance requirements and the reasons for them. Some suggested methods of compliance plus illustrations of correct storage and burning methods were printed on the reverse side. We also included applications for *Permits for Burning of Rubbish* with instructions on safe burning practices, and asked residents of single- and two-family dwellings to mail in the requests for the free permits to the Smoke Abatement Bureau. Dates of scheduled removal of oil drums (about two weeks after distribution) were stamped on the notices prior to their being distributed, house to house, by junior health inspectors. Smoke Abatement Bureau personnel simultaneously canvassed commercial establishments in the program areas. These direct contacts were essential to develop each citizen's awareness of his individual responsibility for the problem and its correction.

For the first trial program, the Sanitation Committee selected an area known as Section 45 by the Department of Public Works. The area contains 392 blocks and about 12,000 homes. Reasons for selecting this section included: (a) the typical citizen in the area had an average income from stable employment and lived in a single-family home; (b) the prevalence of homeownership and civic consciousness presaged a reasonable acceptance of the program; (c) communications could be channeled through civic associations and weekly community papers; (d) the area included a variety of physical and social conditions; and (e) the area was sufficiently compact that success of the program could be visually demonstrated and yet large enough to include a full cycle of rubbish collections schedules—the basis of the administrative organization of the program. We hoped that success in this area would help in furthering the program in the rest of the city.

About 87% of the householders promptly procured the specified two portable galvanized containers of 20-26 gallon capacity, and either a proper burning basket or a third container, as illustrated in our notice forms. We had notified all hardware jobbers of our program several weeks in advance so they could stock proper containers. We furnished the dealers with three-color official posters, illustrating the ordinance specifications.

The first follow-up inspection, made five weeks after the initial canvass, showed that more than six out of seven householders had complied. Warning-type notices were issued to the most flagrant violators, and of these, again about 87% complied without court action.

Survey Findings

A survey of the alleys showed that the solutions selected by the informal leaders of each block were often copied by others in the block—and where the leaders ignored the notices, many others in the block did likewise.

The typical response was conformity to a degree beyond our expectations—and this could not have been achieved except by an accelerated "blitz" attack which encompassed Section 45 in a short four-month period. The mayor and the Sanitation Committee were so impressed with these improvements that a schedule was promptly developed to extend the program to the entire city. One district at a time, and 12 additional positions were allotted to the Health Department so that the city-wide program could be completed in a little over a year.

Acceptance was excellent, and many citizens even went beyond the minimum standards set up by the

ordinance. Some civic associations and neighborhood councils requested a speed-up in the oil-drum removal schedule to accommodate certain objectives of their groups—a gratifying contrast to the apathetic and critical attitudes sometimes exhibited prior to completion of the demonstration.

Benefits Derived

One motive for this ready acceptance by civic associations was to secure the improved collection service, including a guaranteed schedule of two weeks between rubbish collections, which was made possible for the first time by the more efficient storage practices adopted by the citizens. Other benefits included:

- A saving of about 10% in man-hours per collection cycle and about one-half million dollars per year in collection costs without sacrificing dependable service.
- A reduction in fire alarms due to rubbish fires plus a noticeable decrease in air pollution.
- Cleaner alleys—resulting in many cleaner backyards. Undoubtedly the spirit of the year-round alley-sanitation campaign helped Detroit win the "Cleanest City Award in 1956.
- More effective rodent and fly control —the public health objectives of the program.

We are now continuing the fight to starve out rats by destroying and removing concrete receptacles at single- and two-family homes, where such receptacles are now illegal, as well as by destroying defective receptacles at other premises. About 60% of contacted householders with illegal receptacles of this type have voluntarily requested the city to remove them. It is noteworthy that the percentage of compliance was reduced to only 5, instead of 7, out of 8—illustrating the disadvantage of a strictly educational approach without the frank threat of punitive action by enforcement, as attempted in this phase of the program. Voluntary demolition of obsolete and dilapidated sheds and garages is another program already under way.

Many citizens in older parts of the city have long realized the need for organization on a block and neighborhood basis for community betterment. In numerous cases the health educators assisted these leaders in organizing a block club or council, which in turn served to multiply the efforts of the health inspectors by maintaining a continuing positive effort to convince the nonconformists and recalcitrant neighbors. Tangible and dramatic success with a specific exterior improvement program for the neighborhood performed wonders for the embryonic councils and prepared them for broader objectives under our "workable program" of urban renewal.

Dual Approach Needed

Man's desire to be a part of a successful group can be harnessed to promote environmental health objectives. Enforcement techniques cannot do the job alone but must be kept available to deal with the 13% or so who constitute that refractory minority who will respond only to threats of punitive action. Educational techniques alone, without "force" to provide a foundation, will not fully succeed in achieving their objectives. This is true in urban renewal programs in their broadest scope as well as in specialized waste receptacle programs. The "educational-enforcement approach," enabled us with only a small staff to modify the habits of about a million people in a little more than one year.

Anchorage Wins REA Co-op Property Tax Case

ANCHORAGE, Alaska has scored a notable "first" by winning a property tax case from a Rural Electric Administration electric cooperative. In a decision rendered February 6, 1958, the United States Court of Appeals for the Ninth District reversed a decision of the District Court for the District of Alaska, Third Division, and directed the court to enter an order for the sale of properties of the Chugach Electric Association, to satisfy the delinquent taxes, penalties and interest. Two similar cases, the City of Anchorage *v.* Chugach Electric Association and the Anchorage Independent School District *v.* Chugach Electric Association, were consolidated for the purposes of appeal.

The city originally levied property taxes on the Chugach Electric Association transmission lines and distribution facilities as well as a generating plant located within the boundaries of the Alaska Terminal Reserve. The Independent School District levied taxes for its facilities outside the corporate boundaries of the City of Anchorage. When the Association refused to pay the taxes, the City and School District placed the property on the delinquent tax roll and sought judgment in the District Court. The Association then moved to dismiss the order, arguing that cooperatives, operating utilities under arrangements with the Rural Electrification Administration, were exempted under territorial law from municipal or school district taxes.

Law Provides Exemption

Chapter 10 of the Sessions Laws of Alaska for 1949 did provide such an exemption. The District Court held for the Association, and therefore dismissed the order of sale.

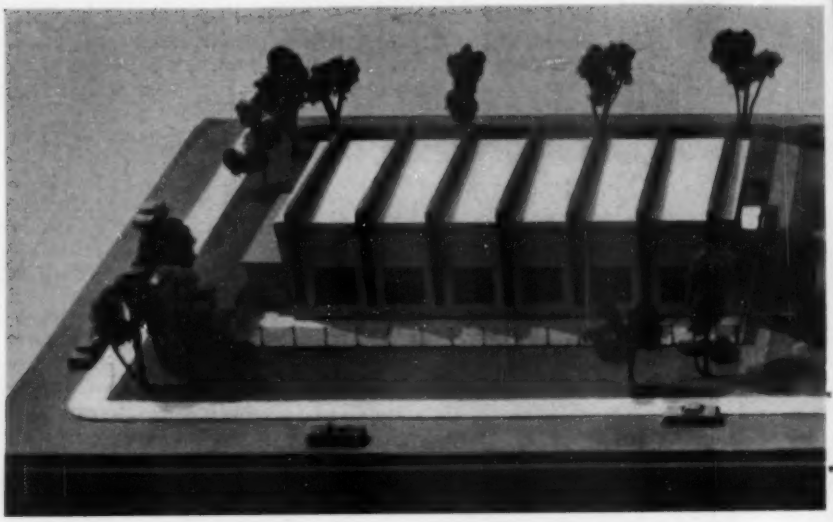
The Court of Appeals, however, in an unanimous decision, found that the District Court had decided erroneously, holding that a correct interpretation must result in the Chugach Electric Association being denied the exemption claimed. The substance of the opinion is contained in a 750-word examination of the statutes involved.

The Court of Appeals also disposed of the two other contentions of the Association. The Association urged that it was a federal instrumentality; this proposition was dismissed by the Court of Appeals in a paragraph. Finally, the Court of Appeals ruled that the third alternative position of the Association, that the property subject to taxation was located on a federal reservation, was not correct.

The amount of taxes, penalties and interest involved insofar as the City of Anchorage is concerned is in excess of $200,000; for the School District, nearly $100,000.

Aberdeen, Miss., Annexes

ABERDEEN, Miss., has extended its city limits for the first time in 65 years. According to the League of Mississippi Municipalities, the annexation almost doubles the city's land area and guarantees the new section police protection and garbage collection service by October 1. Fire protection was extended immediately.



Here is the open-air swimming pool in summer. The mobile shelter at the left can be used as a summer theater or convention hall.

Indoor Outdoor Swimming Pool

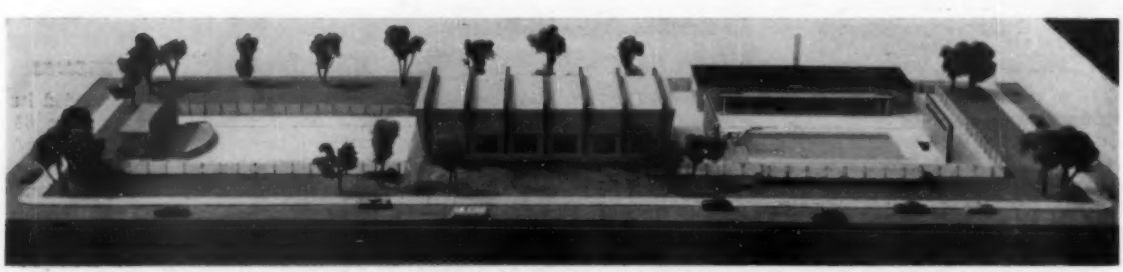
Montreal to provide a mobile shelter for a swimming pool and community building

By A. LEDUC
Engineer-Superintendent
Department of Public Works
Montreal, Canada

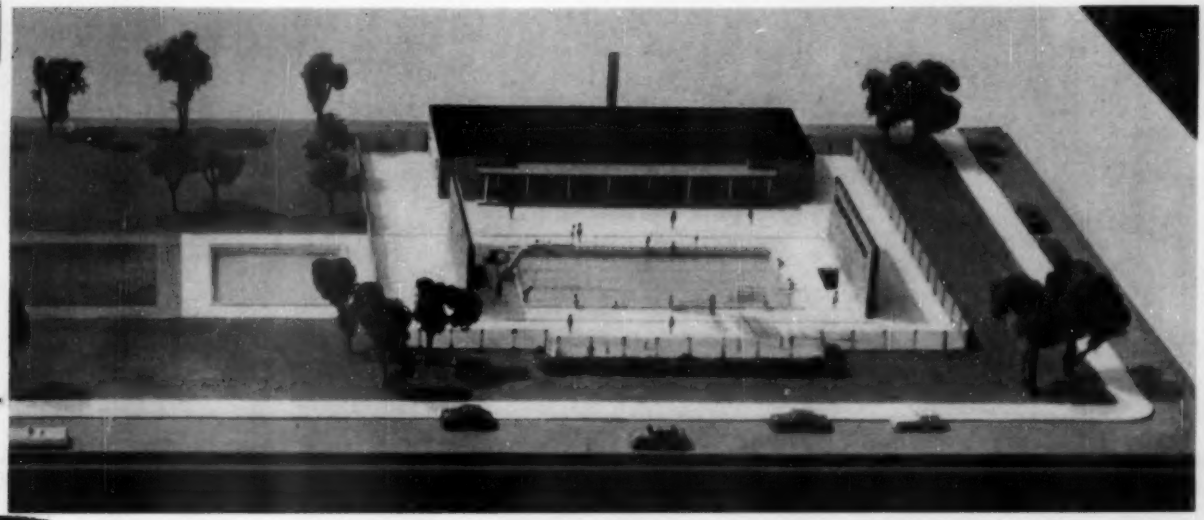
THE problem of the short season has made most open-air swimming pools very expensive in most northern areas. Montreal, however, will overcome this difficulty with an unusual mobile building. This pool follows the practical formula of adaptation to all seasons. It is *open-air* during the warm season and *closed-in and heated* during the cold season.

The main components of this combination are: the swimming pool, the bathhouse and a mobile structure. The latter can be used to shelter a summer theatre during the summer. In other words, the convertibility of the swimming pool is obtained by moving the mobile structure over or away from it, according to the season. When the structure has been put back in place for its main function at the end of the summer it adapts itself to two stationary end walls to provide a building 120 feet long by 60 feet wide and 24 feet clear height inside. During the winter months, the area occupied by the mobile shelter, can be utilized for an artificial or natural ice rink of regular dimensions.

The structure is mounted on rails and is made of steel sheeted with aluminum, which makes it very light and easy to move. The airtightness of the joints of the building is provided by means of inflated rubber tubing or foam rubber. In the summer the swimming pool, of Olympic dimension, 42 feet wide by 82½ feet long is in the open and permits swimming under the sun, fresh air, sun bathing. In the meantime, the theatre is sheltered from the rain and the sometimes uncomfortable summer night breeze. In addition, a wading pool using the same filtration system as the main pool, has



The mobile shelter moves according to the season. Here the mobile shelter is in an intermediate position.



been provided in the vicinity. In winter, the swimming pool is closed-in and heated. The area occupied by the theatre can now be converted into a skating rink.

For several years, Montreal has been looking for a type of swimming pool which would combine the advantages of conventional closed-in and of open-air swimming. Of the various projects examined from the United States or Europe, none seemed to be entirely satisfactory. This mobile shelter appears to be a simple, practical answer and may well exert a powerful influence on the whole concept of municipally-owned swimming pool construction.

Open-air swimming pools are already contemplated for some of Montreal's 320 parks. It will be possible to apply the mobile type of shelter in most cases so that the swimming pools can be used during 12 months of the year instead of only about 2 months and yet, provide the advantages of open-air swimming during the summer.

Accommodates More Swimmers

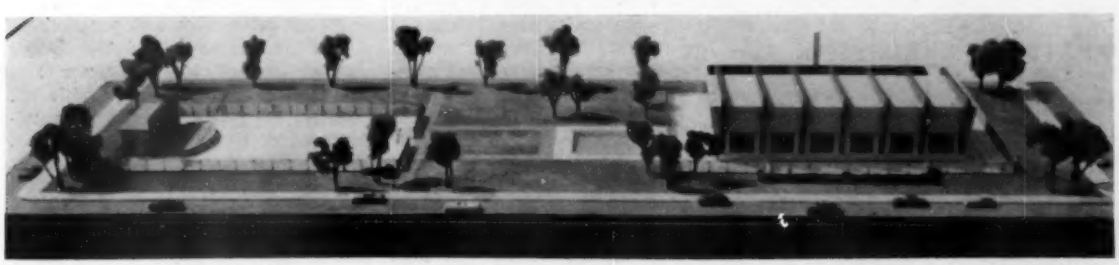
Another advantage is the fact that an open-air swimming pool can accommodate 3 to 4 times more swimmers; in fact, for each person in the water, there are generally 2 or 3 outside the water, basking in the sun. The pool can accommodate about 125 people at a time in the winter and about 400 in summer. The park area required in this case is 250 feet by 570; this plan can, however, be easily adapted to smaller areas of various shapes; each case would, of course, have to be studied according to the space available.

The cost of this type of construction will be about the same, if not a little less, as that of a conventional type of public bath and the use of this mobile shelter at strategically located parks of the city would be a boon to the families of lesser means who can not afford a car or week-ends in the country.

Copyrights have already been obtained by the author for both Canada and the United States. Application is presently being made for patent rights.

It is expected that working drawings for construction in the Montreal region will be completed within the next few months and that they will be made available on a reasonable royalty or engineering fee basis.

Because of the versatility of this combination, Montreal and several municipalities in Canada have shown more than mere interest in the first project of this type. It might be under construction in 1958 or early '59.



In the winter the mobile shelter covers the pool. A skating rink can be installed on the area occupied by the theater.

Mayor Edward F. Voorde (at the right) and City Engineer Raymond Andrysiak check the flow of a well during its test period.

Water Supply Development

Citizens' group and municipality cooperate to turn water system from a liability to an asset

By RAYMOND S. ANDRYSIAK
City Engineer
South Bend, Ind.

SOUTH BEND'S water development program has turned a municipal water problem into an industrial development bonanza over the last three years. The success of the program is evidenced by South Bend's report of a gain of 36 new industries, plus the expansion of another 26 industries in the area. In addition, retail sales and bank deposits have grown impressively, and the city is again happy and prosperous.

The hot, dry summer of 1953 made it necessary to impose sprinkling restrictions, and as lawns burned up, so did the citizens. To aggravate matters still further, a high iron content produced deposits in the mains. Sudden changes in flow resulted in red water—and numerous complaints.

Citizens' Group Formed

About that same time South Bend was also plagued by the loss of major industries, and with water shortages, new industries did not look upon our area with too much favor.

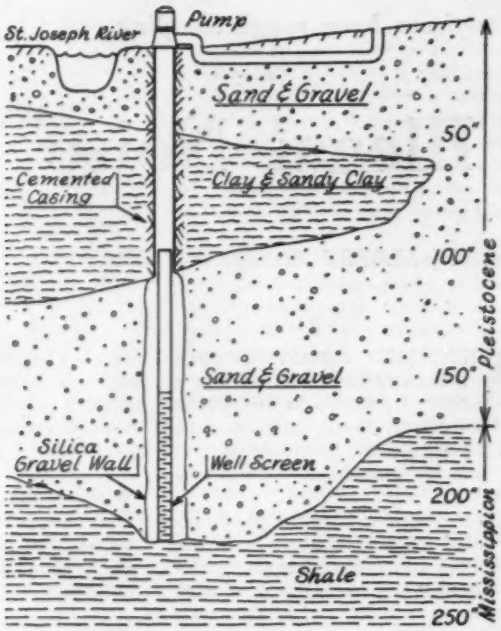
Action was started. A group of leading citizens from South Bend and our sister city, ***Mishawaka,*** concerned over their area's economic health, banded together to form "The Committee of 100." They gained the support of hundreds of businessmen who shared the belief that industrial diversification was needed. This group raised $300,000, hired a professional staff and went to work.

Water Needed

The job was to provide an ample supply of good water, necessary for growth—business or otherwise.

Aided by money and researchers from the Committee of 100, Water Superintendent Fred Wagner and the writer began to assemble all known information concerning underground conditions in the South Bend area. A history of test wells and a study of the geological strata in the area led us to believe that a great underground stream flowed beneath the area and that two major tributaries joined the main stream

Superintendent of Water Fred Wagner points out the features of one of South Bend's new wells at North Pumping Station.



A sketch of the aquifer underlying much of the South Bend area, a source of good water for domestic and industrial use.

Spurs Industrial Growth

almost directly beneath the hub of the city.

At this stage we felt an expensive underground study by geologists was not warranted. However, we requested funds and the authority to drill a series of test wells and, where these proved productive, to put in permanent wells. Approval came in the form of $300,000 appropriation from the water utilities funds. About this time we also started the practice of adding glassy phosphates to the water for iron control.

New Wells Drilled

The test wells confirmed our belief that a large underground source existed. Since 1954 we have installed seven new wells. By January 1, 1957 the city's maximum yield per day had been raised from 36 mgd to 48 mgd and by mid 1957 the completion of two new wells at a cost of $60,000 raised this figure to 54 mgd.

Of the seven wells, five are 38 inches in diameter and vary in depth from 108 to 200 feet. Their yield varies from 3.0 mgd to about 3.2 mgd. Two of the wells have diameters of 34 inches, are 137.5 and 175 feet deep, respectively, and have yields of about 1.5 and 1.2 mgd, respectively. All told we now pump from 20 wells.

We have six pumping stations located throughout the city as follows:

Station	Pumping Capacity (mgd)
North	13.0
Oliver	11.0
South	8.0
Central	6.0
Airport	2.5
Coquillard	11.5

The distribution system is interconnected with a 7,000,000-gallon reservoir located on high land in the south section of the city so that it floats on the entire system.

New Mains

Construction during the past few years has not been confined to the area of supply. During the 1957 season we spent approximately $100,000 on main extensions and strengthening of the distribution system. New industries looking over the South Bend area can be assured of water. Our water utility can provide ample water to those seeking to locate within the city and the Committee of 100 is able to provide adequate information concerning underground conditions to those industries planning to locate outside the city.

Large feeder mains run directly from the pumping stations and reservoir to the most important industrial areas, enabling us to keep a good supply of water at adequate pressures available to industry at all times.

Good Supply Assured

Continued growth means constant vigilance and although we are not entirely without problems we do have the situation well in hand. The supply is here—our job is getting it to the customer. This has been done over the past few years and we expect to keep on doing it in the future.

Why municipal antinoise ordinances sometimes have rough sledding

Illegal Noise

By ALBERT WOODRUFF GRAY*

ANTINOISE ordinances, while necessary in a city, present a thorny problem to the municipal law officer. Court decisions have not yet defined the boundary beyond which noise consistently becomes illegal.

Early decisions gave the public little help. A half century ago, the New York courts set aside an injunction against the operation of a coke oven on the outskirts of Buffalo with this reasoning:

> As a general rule, the owner is at liberty to use his property as he sees fit without objection or interference from his neighbor.

This precept, however, according to this same court, is limited by an old law maxim that has probably been manhandled more than the Decalogue of Moses. Further quotation from the court goes as follows:

> There is a limitation to this rule; one made necessary by the intricate, complex and changing life of today. The old, familiar maxim that one must so use his property as not to injure that of another is deeply embedded in our law (Seligman v. Victor Talking Machine Co., 63 Atl. 1093, 1906).

Another plaintiff fared somewhat better, in a more modern court decision. The New York Central Railroad had appealed a conviction of violating a New Jersey municipal antinoise ordinance that read as follows:

> Whatever loud and unnecessary noise which disturbs the public peace * * * between the hours of 11 p.m. and 7 a.m. is hereby declared a nuisance and is prohibited.

The citizens of the town claimed that the railroad engines emitted whines, hums, and other noise hard on the eardrums and disturbing to sleep. The railroad attorneys contended first, that the ordinance was fatally vague and indefinite in its prohibition of noises as "loud," and secondly, that the noises were not "unnecessary." The court did not find the ordinance vague:

> As to loudness, it is held that to be actionable as a nuisance, noises must be loud enough to appreciably disturb the complainants' rest. The noise, in this case, apparently was not "appreciable."

As far as the feature of what might be called "unnecessary," the court added:

> As to what may be regarded as "unnecessary" noise, the cases again afford judicial expressions in the aid of interpretation. By another state court, noise is an actionable nuisance only when it passes the limits of reasonable adjustment to the conditions of the locality and the needs of the maker to the needs of the listener. (State v. New York Central Railroad Co., 116 Atl. 2d 800, New Jersey, Sept. 21, 1955.)

An Illinois court, two months later, upheld Chicago's antinoise ordinance reading:

> It shall be unlawful for any person to construct or maintain within 200 feet of any residence a factory wherein are used pneumatic hammers or other apparatus which cause loud or unusual noises.

The owner contended that the ordinance was unconstitutional, violating both state and federal constitutions guaranteeing due process of law in taking of private property. He further asserted that the ordinance was discriminatory, that it took private property for public use without just compensation, and that it bore no substantial relation to the public health, safety, morals, or general welfare. Nevertheless, the court supported the ordinance, denying the injunction with these words:

> Though noise is not a nuisance in itself, it may be of such a character as to constitute a nuisance in fact, though it arises from the operation of a factory, industrial plant, or other lawful business or occupation.

It then went on to say that no one even in pursuing an otherwise lawful business, ever acquires a vested right to create or maintain a noisy nuisance (*Dube* v. *City of Chicago*, 131 N.E. 2d 9, Illinois, Nov. 23, 1955).

In sharp contrast, a New York court held for the defendant only a few years earlier. A traction company had been convicted of maintaining a public nuisance, defined by a statute reading in part:

> In unlawfully doing an act or omitting to perform a duty, which act or omission annoys, injures or endangers the comfort, repose, health or safety of any considerable number of persons.

The offense, in this instance, was

* Mr. Gray is a legal writer and the author of "Purchase Law Manual."

the moving of street cars during the night from a terminal to a storage yard, approximately a mile away. In its reversal of the conviction, the Court of Appeals said:

> Injury to individuals in their private rights does not constitute a public nuisance and no unlawful injury to the public results from an act of the railroad company in the performance of its public function with the sanction of the state in the manner and at the place not prohibited by any regulatory body (People v. Brooklyn & Queens Transit Co., 283 N. Y. 484, New York, July 24, 1940).

A few years later, owners of a brass foundry operating until 3 a.m. also were able to set aside a conviction under the same statute. The earlier decision was the authority for the successful appeal (*People* v. *Accurate Brass Co.*, 69 N.Y.S. 2d 306, New York, March 31, 1947).

Probably the best definition of the limits of noise was the one laid down by the Supreme Court of Massachusetts in sustaining the dismissal of an action for an injunction against a Boston cigar factory. The court ruled:

> The noise may constitute an actionable nuisance, but it must be a noise which affects injuriously the health or comfort of ordinary people in the vicinity to an unreasonable extent. Injury to a particular person in a peculiar position or of specially sensitive characteristics will not render the noise an actionable nuisance.
>
> The delimitation of designated areas for use for manufacturing, industry, or general business is not a license to emit every noise that may possibly attend the conduct of any one of them. (Tortorella v. Traiser & Co., 188 N.E. 254, Massachusetts, December 4, 1955).

In essence, this Boston court held that a noise is illegal if it injures the rights of property, health, or comfort unreasonably. These are legal grounds that will challenge the judgment and talents of all municipal legal departments.

Philadelphia Engineers Receive Merit Awards

IN PHILADELPHIA, Thomas Baldwin, chief of the Automotive Services Division, Department of Public Property, and Ernest R. Brooks, Surveys and Plans Engineer, Department of Streets, were presented meritorious service awards by the American Public Works Association for distinguished service rendered in the field of municipal engineering and public works administration.

The awards were made at the annual dinner of the Metropolitan Philadelphia Chapter of the American Public Works Association. They were presented by City Managing Director Donald C. Wagner.

Mr. Baldwin was cited for outstanding service during his 35 years with the city and for his role in developing the city's mobile communication system which has proven invaluable during fire and other emergencies.

Mr. Brooks was honored for 41 years of service to the city and for his direction of intricate and difficult engineering phases of the Penn Center development, including the underground street system.

Nation's Smallest City-County Building

FOR $409,000, Del Norte County, Calif., has built a delightful rambling, single-story frame courthouse with space leased to the Crescent City government.

The design naturally made use of the region's redwoods and Douglas firs. Exterior walls are rough-sawn.

The County Supervisors' chamber doubles as the City Council chambers. Giant wooden arches fabricated in Portland, Ore., by Timber Structures, Inc., span the 40-foot wide rooms. These beautiful man-made curved arches set the architectural theme for the entire building.

Architect William M. Van Fleet has seen to it that patrons of various city and county offices and the library may enter directly from the street into the offices desired, and he did some fine landscape designing.

Wooden arches form framework for council chambers. Note skylights and glass wall.

Left:
Newton, Mass., saves time and labor by using a wood chipper to help load brush after a messy windstorm.

Right:
Bergen County, N. J. chips road brush and then scatters them on the roadway shoulder. This is a quick money-saving way to clear the county highways.

Instant Brush Removal

By FRANK CHIAPPARDI
Quaker City Tree Surgery Supplies
Philadelphia, Pa.

INSTANT brush disposal is essential to modern shade tree care, and is a solution to expensive labor costs. Today you can clean up instantly—as soon as trees are limbed.

The explosive growth of urban developments and communities in the past ten years has created many difficulties for municipal, park, road, and sanitation departments. No work is more expensive, more time-consuming than brush disposal. It is usually an extra job for some already-overworked city department, a job no one wants or likes. The old method of loading brush with hand labor is more than city budgets can allow today.

Wood Chippers

Today, park and shade tree crews and tree surgeons can use wood chippers that are precision-manufactured to the point where they cost little to maintain and service. The savings in labor are large; the cost of maintenance is small. Two men can feed brush into a wood chipper and watch the chips being blown into a truck. There is no loading. Before, four or six men were needed to load brush onto trucks. Today, one load of chips equals seven or eight loads of brush.

Wood chippers do several complete jobs in one operation. Not only do they eliminate hauling and loading brush, but they eliminate brush disposal either by burning or dumping into landfills.

Burning Not Good

Burning at its best is always dangerous and a nuisance. Weather conditions have to be favorable before brush can be burned. Even if town or city ordinances allow burning on city streets, there is always the danger of spreading fires to dry leaves; injuring shade trees by scorching; and the many complaints by street residents about the smoke.

Unchipped brush in sanitary landfills makes an unstable base that settles unevenly. Bulldozers and tractor-mounted bucket-loading equipment have difficulty handling piles of brush. Workmen also find it awkward and somewhat dangerous.

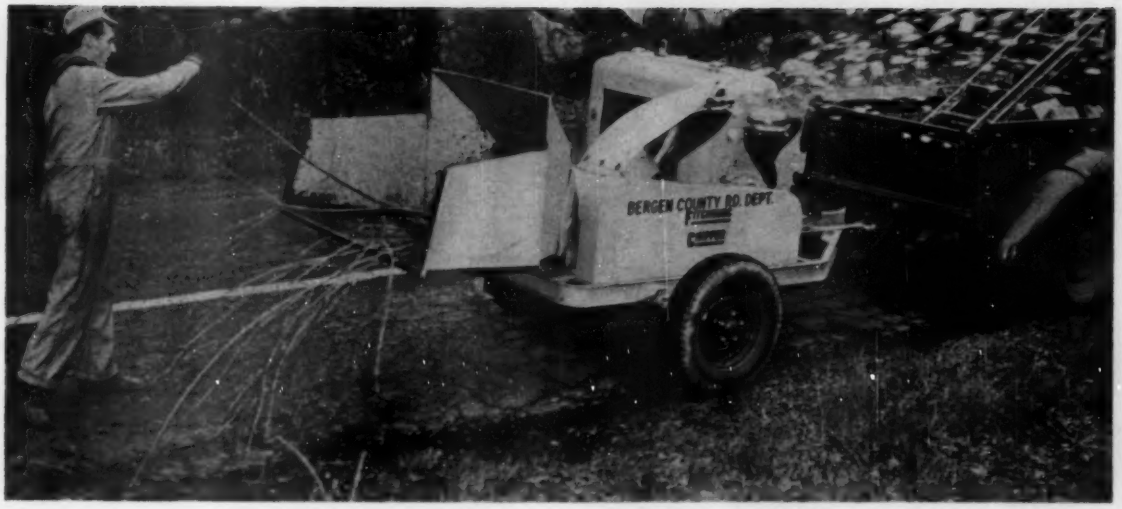
Wood chips, on the other hand, are easy to move by any carrier, easy to burn, and can be used for soil stabilizing or mulching material. Park departments find that the chips are excellent to use as mulch around their plantings. Chips keep the weeds down and improve the plant's soil conditions. The chips are also used along bridle paths, walkways, and playfields that are subjected to hard use and will not grow sod. This wood-chip mulch gives bare earth better drainage, more stability, and makes playfields and paths useable sooner after wet weather.

And many times homeowners will want the wood chips to use around their own plantings. This eliminates hauling altogether and your public relations will be greatly improved when people begin to say, "We got the wood chips from the park department."

But if wood chips have to be hauled to town dumps, they present no problem. They mix well with any material, burn quickly and safely—there is no danger from flying sparks—and the chips can be mixed with top soil to raise the humus content, make new fill dirt more fertile. Most cities find that there will be enough demand for chips from nurserymen, homeowners, park and parkway departments so that disposal will never be a real problem.

Fast Brush Removal

Wood chippers show their worth and economy to towns and cities, in times of emergency, when storms uproot trees, or ice storms break off branches. As fast as chain saws cut off limbs, the chippers chew their way through branches to open roadways and get traffic back to normal. Electric light and telephone service are more easily restored. Those who remember the hurricanes of 1954 and 1955 appreciate the value of fast brush removal when clearing high-



ways and cities littered with fallen trees and broken branches.

It is interesting to observe the team play of shade tree commissions with other city departments. In a growing number of cities, the chippers provide a post-Christmas way to dispose of the Christmas trees safely. A wood chipper trails behind refuse trucks, chips the trees and blows the chips into the elevators of the truck. The chips burn readily in the incinerators. There are no charred tree stumps left to jam incinerator grates. And this is a season when park departments seldom use their machines.

Crews maintaining outlying streets in semirural areas find these brush eaters excellent for chipping brush along rights-of-way. They simply chip the brush and leave the chips along the roadway shoulders. The neat wood chip mulch keeps weeds down, and stabilizes shoulders during wet weather.

Specifications

Purchasing agents would do well to examine a wood chipper carefully before they buy them. Choose a chipper that is engineered to give maintenance-free operation, one that is ready to work when it is needed, not one that requires extensive shop work and frequent blade sharpening. See to it that the chipper of your choice has fast acting clutch controls. These machines turn very fast and are equipped with a cutting head, otherwise they could not perform the task for which they were designed. Make sure the chipper your city buys can be controlled quickly and easily for the complete safety of brush crews.

Modern machinery cannot save you money when it is in the shop. Top performance is the key to lower interest rates on your investment. Be sure you buy a chipper that is well built and guaranteed to do the tough job it was designed for. This guarantee will assure you that the chipper will be out on the road earning its keep.

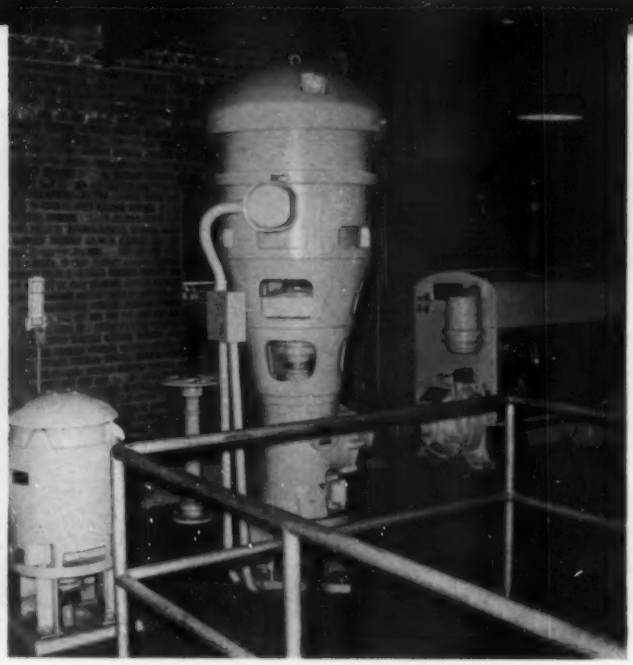
Improved public relations must be included in your thinking when your shade tree commission considers investing in a wood chipper. The public will be impressed when they watch these machines at work.

In short, these machines are an investment in your town's future that will continue to return interest in many diverse ways. Wood chips do many things, are used in many ways . . . there is nothing you can do with brush except get rid of it.

EDITOR'S NOTE: Mr. Chiappardi's article is based on a talk he gave before the New Jersey Federation of Shade Tree Commissioners.

At Hartford, Conn., banana stalks presented a big disposal problem at the incinerator; so a chipper now makes mulch of them for use on city properties.

Two trickling filters provide secondary treatment. The treatment plant's two digesters can be seen in the background.



The largest of the three primary lift pumps (4,240 gpm) can be driven by either an electric motor or a gasoline engine.

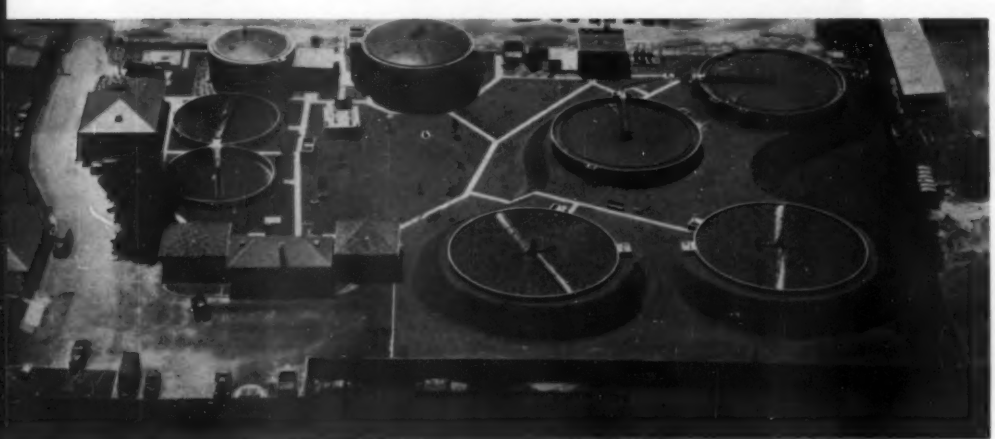
Remodeled Sewerage System

At Glen Cove, N. Y., automatic equipment and enlarged plant reduces harbor pollution, increases purifying efficiency, and lowers maintenance and operating costs

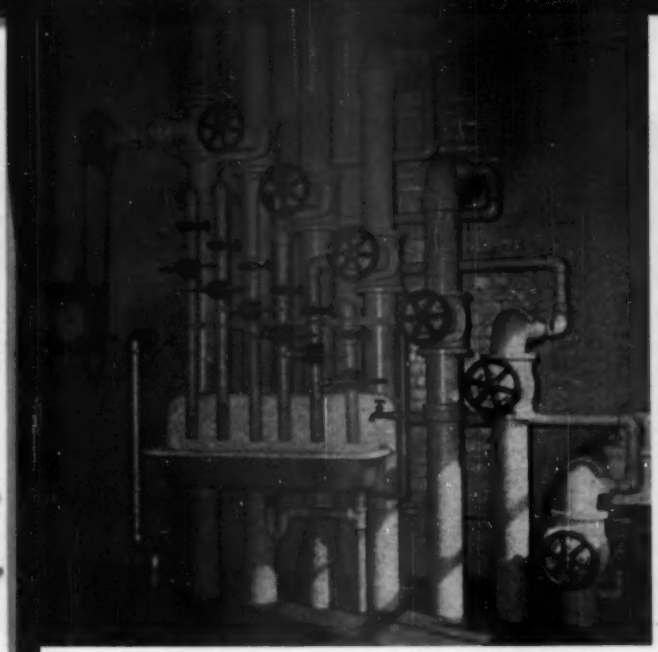
By HARLAND N. PHILLIPS
Superintendent of Public Works

BY INCREASING capacity and adding secondary treatment, Glen Cove, N. Y., removed a major source of pollution from the natural waters of Hempstead Harbor. This Long Island city of some 20,000 persons has operated a sewage treatment plant for many years, but it provided only primary treatment, and for the past few years was seriously overloaded.

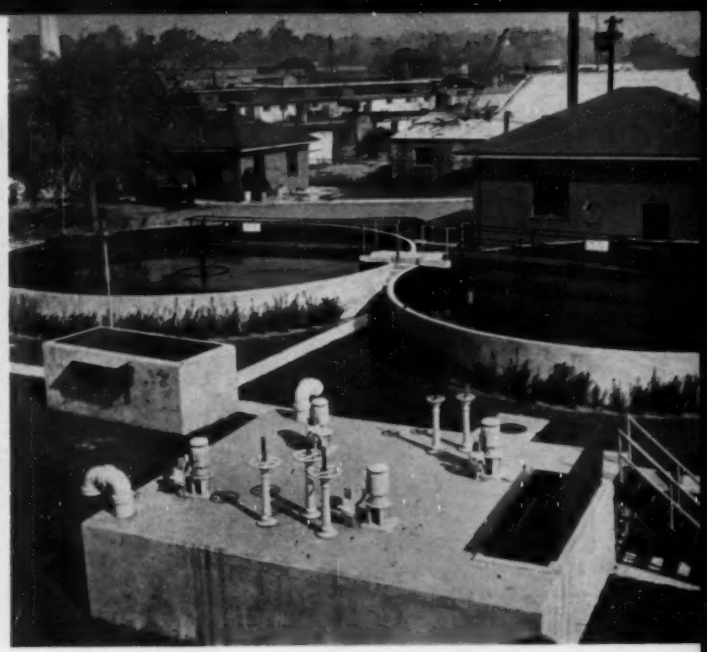
In designing the new facilities, our engineers, C. MacCallum of Port Washington, N. Y., did an excellent



An aerial view of the enlargd plant. Open space between large digester and trickling filter is free from all underground piping so another digester may be constructed if needed.



A series of taps connected to the secondary sludge digester make sludge sampling a simple matter for Glen Cove, N. Y.



Once the secondary tanks were Imhoff tanks, then changed to primary clarifiers and finally converted to secondary units.

Accomplishes Three Objectives

job of utilizing existing equipment, laying out the new facilities, and employing the use of modern equipment both at the plant and for the automatic control of our many lift stations.

New additions included a grit chamber, a lift station, two primary clarifiers, two trickling filters, and a new digester. Other work included the conversion of the existing settling tanks into secondary clarifiers, the addition of pumps, chlorinators and control equipment, the rewiring of the sludge filter building and equipment, and general modernization of existing buildings and facilities.

Sewage from the 24-inch and 12-inch trunk mains enters a common manhole at the plant and flows to the Chicago Pump Degritor via a 27-inch line. The addition of air to the sewage plus a change in flow direction causes the heavier particles to settle into the grit hoppers. A 200-gpm, 160-foot head DeLaval jet pump lifts the settled grit to a concrete overhead chamber fitted with a Beaumont Birch slide gate that permits dumping the grit into a waiting truck for final disposal. A coarse bar screen ahead of the Degritor removes rags and other large objects, keeping them from wrapping around the air diffusers.

The sewage then flows through a single Chicago Pump comminutor to the lift station wet well. By use of shear gates, either the Degritor or comminutor, or both, may be bypassed.

New Pump House

The new pump house, or primary lift station, houses the pumps, two Chicago Pump Standardaire blowers for supplying air to the Degritor, an 810,000 BTU input National gas boiler used to heat the primary digester, two Rockwell gas meters each having a capacity of 7,000 cubic feet per hour at 2-inch differential pressure, and a pressure tank for the plant water system.

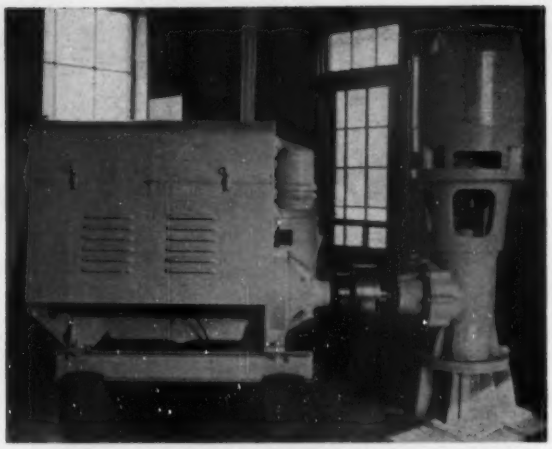
Pumping equipment consists of three Yeoman pumps, two rated at 2,320 gpm against a 32.8-foot head and one rated at 4,240 gpm against a 41.9-foot head. All are driven by Westinghouse electric motors, and the largest pump is also connected to a 75-hp Waukesha gasoline engine. By means of Synchro-Start controls, the engine starts automatically, should the electric power fail, and shuts down when electric power is again available. All electric switch gear is centralized at the plant in a Westinghouse Control Center.

Sedimentation takes place in two 65-foot diameter, 10-foot sidewater depth, 200,000-gallon capacity settling basins containing Dorr-Oliver sludge collecting and scum removing equipment. The effluent from these tanks flows by gravity through two high rate trickling filters. These units are each 75 feet in diameter, contain 5 feet of rock, and are equipped with Dorrco distributors. The filter design is based on a loading of 2,480 pounds of BOD per acre foot and a dosing rate of 30 million gallons per acre per day. The primary clarifiers provide a two-hour detention period at the plant design rate of 3.0 mgd with a 1:1 recirculation ratio.

Originally, the Glen Cove plant consisted of two Imhoff tanks. These were later changed to primary clarifiers and equipped with American Well Works sludge collecting equipment. By filling in the tank bottoms, widening the tops, and revising the mechanical equipment, the engineers converted these tanks to secondary clarifiers. Each unit has a diameter of 40 feet, a 17-foot 3-inch sidewater depth, and a capacity of 196,000 gallons.

Effluent from the filters first flows through a diversion chamber that di-

A jet system carries grit to an overhead concrete tank from which grit is dumped into a truck parked under the chamber.



One of three pumps (a dual drive unit) that pumps the plant effluent into Hempstead Harbor during periods of high tide.

vides the flow before it enters the clarifiers.

Four 650-gpm, 20-foot head Yeoman pumps, driven by 5-hp Westinghouse motors recirculate liquid from the secondary clarifier sludge hoppers to the primary clarifiers.

The final effluent flows to an existing wet well and then to Hempstead Harbor through a 20-inch line that ends at a point about 1,400 feet from the high-tide line. During low tide th effluent flows by gravity; during high tide it must be pumped.

We have three Yeoman effluent pumps powered with Westinghouse motors. Ratings are: one at 2,200 gpm against a 25.8-foot head; a two-speed unit having a maximum rating of 3,110 gpm at 35.6-foot head; and one 3,500 gpm unit at 40-foot head. The latter pump also has a Waukesha gasoline engine that takes over in case of power failure. This engine is also started and stopped by means of a Synchro-Start system. Autocon System Controls, furnished by the Automatic Control Co., regulate both the influent and effluent pumps by means of floats in the wet wells.

All effluent is chlorinated by two Wallace & Tiernan chlorinators. We buy chlorine in 150-pound containers and have a manifold arrangement that permits 20 containers to be placed on the line at one time, all resting on the platform of a Fairbanks-Morse scale.

A 24-inch Kennison nozzle and Builders - Providence, Division of B-I-F Industries, Inc., indicator-recorder instrument measures the amount of sewage passing through the plant.

We operate a primary and secondary digestion system with only the primary digester heated. The digested sludge is then dewatered by a Komline-Sanderson coil filter and hauled away for final disposal. The filter and secondary digester represent part of the existing plant, the primary digester is new.

Digester

The new digester has a 55-foot diameter, a 21-foot sidewater depth, and a capacity of 400,000 gallons. Equipment includes removable heating coils, a fixed cover, and Dorr-Oliver sludge mixing equipment. The existing digester, now used as a secondary unit, is 30 feet in diameter with a 30-foot sidewater depth and a capacity of 220,000 gallons. This digester is equipped with a floating cover. Additional equipment includes two Marlow Duplex sludge pumps and Taylor temperature recording instruments. ACF plug valves were used on the new sludge lines. Ludlow gate and check valves were used in all other portions of the plant.

Signal System

Glen Cove's hilly terrain requires the use of 13 sewage lift stations. By means of a Taller & Cooper transistorized signal system we receive instant warning should any one of the 13 stations have a power failure, mechanical breakdown, or various other abnormal conditions that might occur. This is done through signals sent by means of a transistorized tone generator that automatically sends out a specific tone which has been assigned to each particular pumping station. The receiving board in the central office at the plant picks up these warning tones.

This system enables us to realize a substantial savings in a reduced lift station inspection crew and gives us an earlier notice of trouble than even a large crew could provide.

Our renovation and enlargement project cost approximately $860,000 and was financed principally through a 30-year, $856,000 general obligation bond issue.

R. MacCallum of the firm of C. MacCallum, Consulting Engineer of Port Washington handled all design and supervision of construction. The work was done under the administration of Mayor Joseph A. Stanco and Commissioner of Public Works Robert L. Danis. The writer is in charge of the plant.

San Jose Saves Money With Medical Tests

SINCE San Jose, Calif. instituted periodic, comprehensive medical examinations of municipal employees, the cost of its health insurance program has dropped sharply.

The Public Personnel Association reports that the city received a refund of $26,000 on its health insurance program. Sick leave has also been reduced. One part of the program is a regular examination of all employees over the age of 44. By such examinations, doctors have uncovered several incipient illnesses.

Berkeley, Calif. has also adopted the San Jose program and the State Compensation Insurance Fund has recommended its adoption to several other California communities.

At Amherst, Mass. a standing vote is being taken on one of the important issues raised at the town meeting.

Massachusetts Town Meetings Modernized

How towns in one New England state are revising one of the most colorful and democratic forms of local government to increase its effectiveness

THE dramatic and old-fashioned *Town Meeting* where each citizen may come, speak and vote on every issue is gradually being supplanted in Massachusetts by a form called the *Representative Town Meeting.*

The "representative" or "limited" town meeting developed when towns found the traditional "open" meeting too unwieldy to function effectively. By restricting the number of citizens who could vote on official town affairs to a limited number of townspeople elected by the voters, the representative town meeting became a modification of the original open meeting.

Forty towns now operate with a representative town meeting. With the rapidly increasing population, many other towns find their meeting places inadequate to accommodate all the eligible town meeting members. In some towns the meetings are so large as to preclude satisfactory deliberation on important local legislative matters.

The representative form of town meeting government by a limited town meeting was first adopted by the larger towns of Massachusetts. At that time this form of town meeting was available only to towns of 12,000 population and over. ***Brookline*** in 1915 was the first to adopt the plan. By 1920 ***Watertown, Arlington,*** and ***Winthrop*** also had representative meetings.

An amendment to the state constitution in 1926 extended the privilege of limited town meetings to towns of 6,000 or more. At that time 15 towns of more than 12,000 population had adopted the representative form. During the 30 years following the constitutional amendment, 25 additional towns have adopted this form. Of the 40 towns with the representative town meeting, 26 are in excess of 12,000 population and 14 are between 6,000 and 12,000.

Six other towns obtained legislative approval of representative meeting acts which were rejected by vote of the towns. One of the six subsequently approved a new legislative act after a lapse of several years; and another obtained a new legislative act which has not been submitted to the town for adoption.

The representative town meeting itself is the same as all other town meetings. The warrant is prepared, the moderator presides, the articles are considered and voted upon, and citizens may attend and speak. The one difference in procedure is that only the elected members of the town meeting may vote. Some towns also give the voting privilege to certain town officials who are designated as members-at-large.

When the form was originally established, the towns provided 240 voting representatives, the same as the lower house of the Massachusetts legislature. However, this has still proved unwieldy. Today, half this number generally is recommended.

Fundamentally, the structure and powers of all representative town meetings are the same, although in detail there is considerable variation in practices among the various towns. Most of the legislative acts are copied from similar acts for other towns, but each town appears to have made numerous changes to suit its own local situation. To assist towns in converting from the traditional meeting to the modernized form, the Bureau of Government Research at the University of Massachusetts, Amherst, Mass., has prepared a *Guide for Establishing a Representative Town Meeting.*

Hampton Roads Bridge-Tunnel saves 23 minutes travel between Hampton and Norfolk, Va. and ends need for ferry service.

Major Highway Project

ALL of eastern Virginia, but especially the cities of Newport News, Hampton, Norfolk, and Portsmouth, benefit from the first direct traffic link connecting the north and south shores of Hampton Roads. A 7,479-foot-long trench-type tunnel forms the key part of this link. Access to each portal by means of a bridge connects man-made islands to the mainland.

A trench-type tunnel consists of a series of sections made ashore, launched and towed to the job site and then lowered into a previously dredged trench.

The Hampton Roads tunnel contains 23 double-shell steel tube sections, each about 300 feet long and having an octagonal-shaped outer shell of 37 feet in diameter and a circular internal shell of 33 feet in diameter. Baldwin-Lima-Hamilton Corp. fabricated the sections at Eddystone, Pa., 6 miles from Philadelphia. They were then launched and towed by way of the Delaware-Chesapeake Canal, Chesapeake Bay and Elizabeth River some 250 miles to a "shape-up" basin near the tunnel site. While afloat at the shape-up basin, workmen lined the sections with an inner ring of concrete, placed a 23-foot roadway slab and 2½-foot sidewalk, and installed the necessary pipelines for water supply and drainage, conduits for power, telephone and traffic controls, ventilation ducts and flues, and electrical boxes and outlets. When ready for lowering into place, each section weighed approximately 12,000 tons.

Tugs tow the almost submerged sections into position. They were then lowered, bolted together, and covered with sand.

Sections have been bolted and bulkheads removed. Rods at top will support ceiling, slots at side are ventilating ducts.

Tunnel sections fabricated ashore are tied-up beside a special shape-up basin where work continues within the tunnel.

(Right) shape-up work includes lining section with concrete, placing roadway and sidewalk, and installing other utilities.

Ends Need for Ferry Service

Tugs then towed the almost completely submerged tubes into position for sinking. After enough concrete had been pumped into the space between the shells to produce negative buoyancy, the section slowly settled into the gravel-bedded trench, guided by specially designed tackle suspended from steel framework straddling two barges. As each section settled into position, divers bolted them together and more concrete was placed to fill the space between the two shells. Solid rings of concrete cover the outer joint of the sections and a 5-foot blanket of sand covers the entire tunnel. After this had been done, workmen cut through the steel bulkheads between sections, welded the inside joints and faced them with an inner ring of concrete.

Construction Data

The final construction stage consisted of "squaring-off" the ceiling with preformed metal and ceramic tile, installing the light fixtures and sidewalk railings, and placing an asphalt surface on the roadway area.

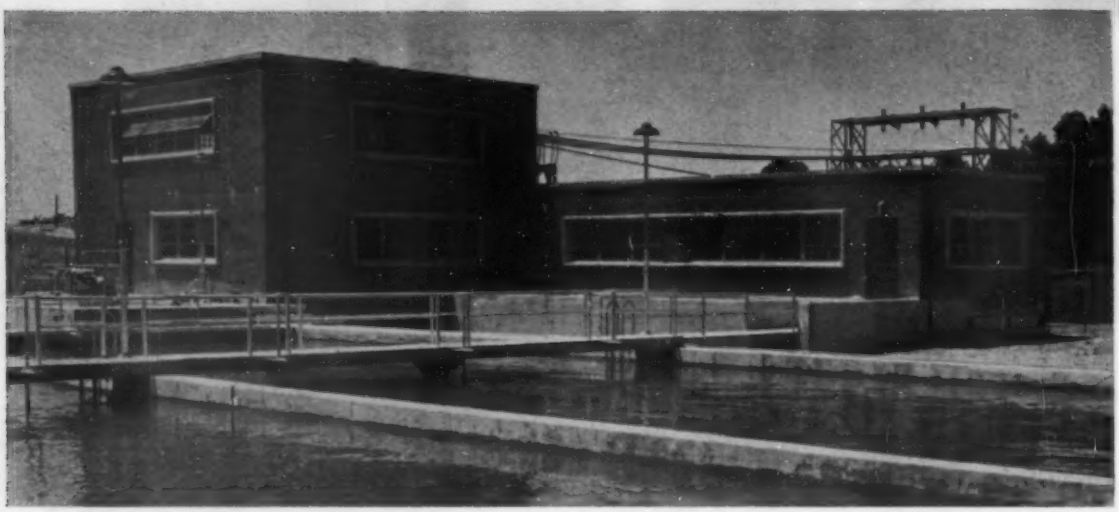
Man-made islands support both tunnel approaches and are connected to the mainland by low bridges. North Island is 1,400 feet long and 170 feet wide, and South Island is 1,250 feet long and 170 feet wide. About 5½ million cubic yards of material dredged from the bottom of Hampton Roads made up the two islands and about 130,000 tons of heavy stone went into the protective sea walls.

Total length of the bridge-tunnel comes to approximately 3½ miles. Length of tunnel from portal to portal is 7,479 feet, with 6,860 feet of this actually under water. It lies approximately 113 feet below the surface of the water at its deepest point.

The Commonwealth of Virginia Department of Highways administered the project, with Merritt-Chapman & Scott Corporation of New York serving as the prime contractor. Parsons, Brinckerhoff, Hall & Macdonald of New York, designed the project and served as supervising engineers.

Dedication ceremonies took place on November 1, 1957 when ferry service ended. Participants included Governor Thomas Stanley of Virginia, Highway Commissioner James A. Anderson, Mayor George C. Bentley of Hampton, and Mayor Fred W. Duckworth of Norfolk.

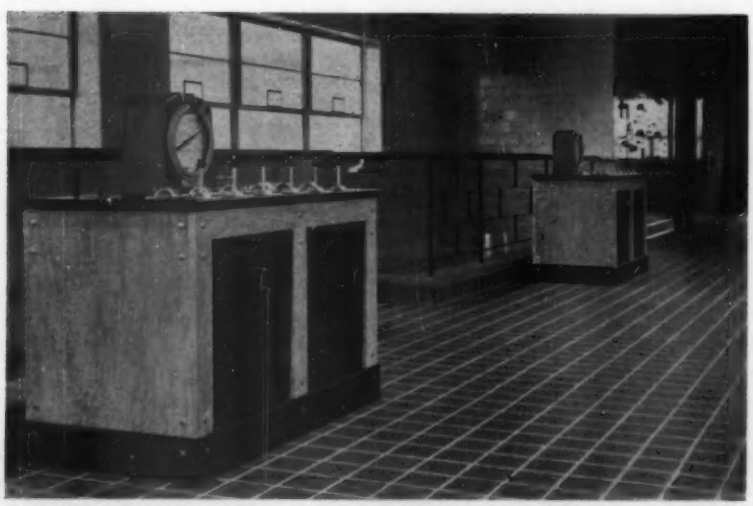
The completed tunnel, ready for use. It is the world's longest tunnel of trench construction—measuring 6,860 feet under water, 7,479 feet from portal to portal.



Seven Miles to Good Water

A small city undertakes an ambitious water supply project anticipating industrial growth and increasing population

By R. E. WHIRLEY, *Plant Superintendent*
Water Department, Albertville, Ala.



Each filter has a rating of 1.0 mgd. Plant design allows for the addition of two filters at minimum expense. Built-in electrical control panel is in the background.

THE seven-mile trip to Guntersville Lake for water is permitting the continued growth for the City of Albertville. Our engineers, Polglaze and Basenberg of Birmingham, Ala. selected this lake on the Tennessee River after making a thorough investigation of all possible water sources in the area. They also designed and supervised construction of the improvement program.

Future Considered

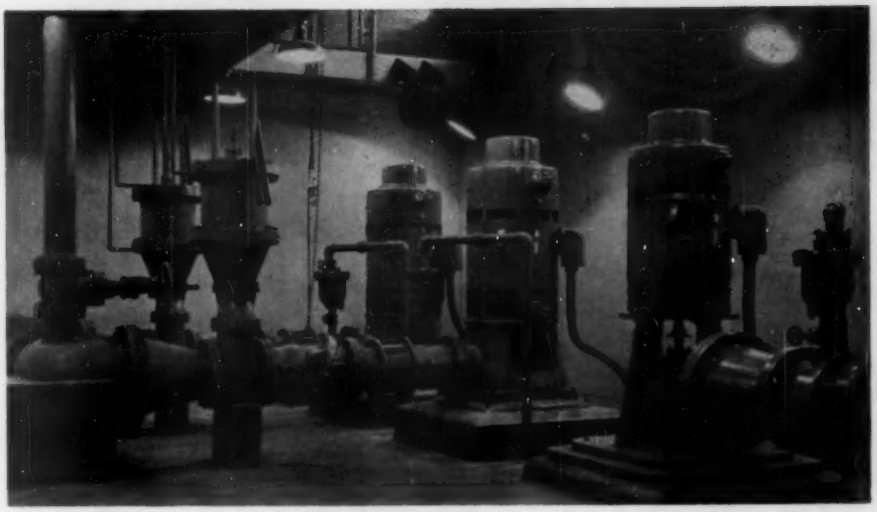
Although the filter plant, as constructed, has a rated capacity of only 2.0 mgd, the original design allows for the addition of filters to 4.0 mgd at minimum expense. The raw water pipeline can handle up to 4.0 mgd and the transmission line from the treatment plant to the city is rated at 4.0 mgd.

The raw water pump station, constructed on the shore of Guntersville Lake, contains two Layne vertical turbine pumps each rated at 1,400 gpm and driven by 200-hp General Electric motors. A 30-inch prestressed concrete station intake pipeline extends about 162 feet into the lake into 24 feet of water. About 2,730 feet of 18-inch steel pipe connects the raw water pump station to the treatment plant. An S. Morgan Smith surge relief valve protects the line from sudden pressures.

Wallace & Tiernan chemical feeders and chlorinators add lime, alum, activated carbon and chlorine at the beginning of the treatment process. The mixture then flows through an over and under baffled mixing basin into a 55¾-foot long x 10-foot wide x 10-foot deep flocculation basin

Left:
The mixing and settling basins are located to the rear of the filtration building. Portions of the filters also extend beyond the building.

Right:
Two 1,400-gpm high service pumps transfer water from the clearwell to the 500,000 gallon elevated tank. Pump in the foreground provides water for backwashing the filters.



equipped with a Dorrco flocculator. Sedimentation takes place in two tanks each 100½ feet long and 33½ feet wide with a 10½-foot average water depth.

Two Filters

The two filters with Wheeler under drains each have a rated capacity of 1.0 mgd based on 2.0 gallons per square foot per day. The hydraulics of the plant is such that two additional filters can be added with little difficulty.

The operators regulate the flow through the filters by using Infilco operating controls, and Builders-Providence, Division of B-I-F Industries rate controllers, loss-of-head gauges and rate-of-flow gauges. A Layne vertical turbine type pump, taking suction from the clearwell, provides backwash water to the filters.

The filter effluent flows to a 105,000-gallon clearwell located in the lower portion of the filter building. Fluoride is added to the water as it enters the clearwell.

Two 1,400-gpm Layne vertical turbine pumps transfer the treated water through some 34,900 feet of 16-inch cast iron main to a newly constructed 500,000-gallon elevated tank. This Chicago Bridge and Iron tank replaces an old 60,000-gallon unit. Storage facilities also include an existing 200,000-gallon tank.

Clark Control Center

The pumps and other mechanical equipment are operated through a Clark control center located on the filter operating floor. Sparling meters record raw and finished water flows, and a Sparling liquid level transmitting system records water levels in the new elevated tank.

The buildings are constructed of brick and concrete with tile floors and walls. Polglaze and Basenberg of Birmingham, Ala. designed the water-works facilities and the Tri-Cities Construction Company held the erection contract. Armco supplied the steel pipe for the raw water line and Clow supplied the 16-inch cast iron pipe used in the transmission line. The Lock Joint Pipe Co. manufactured the concrete intake pipe.

The complete program came to approximately $783,000. This was financed by means of a $840,000 revenue bond issue to be amortized in 30 years. The new facilities replace our former source of supply consisting of a small impounded stream and two wells, all of which were inadequate.

A three-man utility board operates the system through a manager. Members include Pat M. Courington, L. S. Thompson and Marvin Brock, with James W. Johnson serving as manager.

Albertville's filtration plant occupies a site about ¾ of a mile from Guntersville Lake and about 5 miles from the city.

Contractors can paint crosswalk lines at about half the city crew costs.

Professional washers also lower costs.

How Dearborn, Mich. Contracts for Municipal Services

By Harold de WYK, *City Purchasing Agent*

DEARBORN, Mich. is saving a lot of tax money by contracting for certain services. The city now awards contracts for the performance of six activities and is taking steps to "farm out" even more city work to private contractors.

A private firm now washes windows in all city buildings. Other companies trim trees, paint all public buildings, paint and stripe crosswalks, perform janitor services and lease heavy equipment.

Tree Care

The tree trimming work is, of course, the closest to the citizen. Dearborn has about $15 million invested in public trees, and the "care and feeding" of these trees had always been handled by the Department of Public Works, using crews that were not specialists.

Studies showed that a contractor with a few well-trained crews working on a year-around basis could bring in its own modern equipment and trained personnel as needed.

Window Washing

Dearborn's contracting trend really started in 1949. Until then, window washing was primarily the job of the janitors, whose age prevented them from climbing ladders in all kinds of weather. Many accidents resulted.

Now, the private contractor washes all windows in the 11 city buildings once a month for a contract price of $320 a month, which, with all fringe benefits and wages, is less than the cost of one city laborer on the permanent payroll.

Traffic Lines

More glaring is the comparison of costs for painting the crosswalks at street corners. A cost analysis showed that, with city crews, it was costing from 12 to 15 cents a lineal foot for the striping. But with a private contractor doing the same work under competitive bids, the cost was cut almost in half.

The change to private contractors is not made without a thorough study, nor are employees heartlessly bumped from the payroll. Typical is the "pilot" contract for janitor services at the Carmen Theater building quarters of the recreation and veterans departments. Contracting for janitor services was done first in the City of Dearborn on a very small scale as an experiment.

To date, the service by a firm specializing in janitor work has been excellent. Now, as our janitor help retires or resigns, we plan to replace these people with janitor contracts.

More contracts and more savings are in prospect. The washing of police cars, trucks and other vehicles cost the city about $18,000 in one year. Test bids for this work by private car wash firms shows that between $6,000-$8,000 a year can be saved.

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is one hundred percent solids.

It's ability to be applied as a liquid of 100% solids in heavy homogenous films in a "one pass" operation, permits it to be applied to any concrete pipe anywhere.

can be applied in a single operation, without heat, and handled within an hour without damage to the coating.

Curing will be completed in forty-eight hours.

has been evaluated by a nationally recognized testing laboratory and found to be unaffected by and to furnish protection to concrete pipe from concentrations of hydrogen sulfide gas that occur in sewer lines, submergence in water, solutions of mineral acids or caustic soda, ketones and aromatic hydrocarbon solvents, dilute oxidizing solutions, vegetable oils and salts.

The TECKOTE CORPORATION of Vulcan Materials Company does not deal in coating material but rather in a finished protective coating on any concrete pipe. Acting as contractor or sub-contractor, TECKOTE CORPORATION will set up its mobile application plants, furnish material and apply the protective coating to the pipe on a unit price per square foot basis.

For further information and detailed test-results, write: Department A, TECKOTE CORPORATION, A Vulcan Materials Company subsidiary, P.O. Drawer 155, Birmingham, Alabama.

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"Organized for Service"

Vulcan Materials Company

P. O. Drawer 155 ☆ Birmingham 2, Ala.

NEVER OVERLOOK ESSENTIAL BOUNDARY and ILLUMINATING LIGHTS IN HAZARD WARNING SAFETY

By actual test, the brightest, most revealing of all hazard lights, Dietz Flare Torches fully illuminate the danger in any weather: fog, rain, sleet, snow and wind — the stronger it blows the brighter the flame. Weather-proof, rugged and tough, they give up to 40 hours of clear, bright flame from low-cost kerosene.

Use Dietz Flare Torches to show what the hazard is.

ADEQUATE LIGHTING may save you thousands in tragedies, bad publicity and law suits. Write for our latest authoritative manual on Hazard Warning Lighting. It's free. R. E. Dietz Co., 114 Leavenworth Ave., Syracuse, N. Y.

Use Dietz Lanterns to outline the hazard boundaries.

The unfailing light of Dietz Lanterns clearly show the exact location, extent and boundaries of the hazard. Specially designed to burn brightly and steadily in high winds, snow or driving rain.

Use Dietz Visi-flashes to alert the approaching motorist.

Dietz Visi-flash warning lights are the brightest, safest, most trouble-free flashers on the market. They give far-carrying warning that can be seen from either direction, and over wide angles. The Dietz Visi-flash warns, "danger ahead."

Go DIETZ and you go Safely

GATE HOUSE at entrance to Indian Lake Estates, country club community, with the professionally styled L-M Ovalite (Line 2A) mercury vapor luminaires mounted on double upsweep arms to light the dual-lane avenues. These provide uniform illumination of 4.2 footcandles on the roadways. Lights are turned on and off automatically by L-M photoelectric relays.

L-M Luminaires Light Florida's Beautiful Indian Lake Estates

High in the lake and ridge section of Florida, in the area around Lake Wales, is located a new private city, Indian Lake Estates. This is a multi-million dollar development, an exclusive country club community, providing exceptional beauty and outstanding recreational facilities for residents.

Lighting the palm-lined, dual-lane avenues are L-M Ovalite (Line 2A) mercury vapor luminaires. These luminaires, mounted on metal poles at 30 feet, have dual 8-foot upsweep arms. They carry 20,000 lumen lamps and provide uniform illumination of 4.2 footcandles on the roadways. Underground 240-volt wiring serves the luminaires, which are controlled by photoelectric relays.

In addition, a 1,100-foot private pier is lighted with L-M's famous Suburbanaire (Line 2B) open type units containing 175-watt mercury lamps and ballast. They are spaced at approximately 100-foot intervals along the pier and provide 2.0 footcandles of illumination.

Ovalite An Efficient Light Source

The Line 2A luminaires have a high coefficient of utilization. Additional advantages include: choice of Type II, III, or IV light distribution patterns, by simply changing lamps or socket settings; many features for safety and easy servicing, including L-M's exclusive "service-safe" socket; choice of series or multiple service.

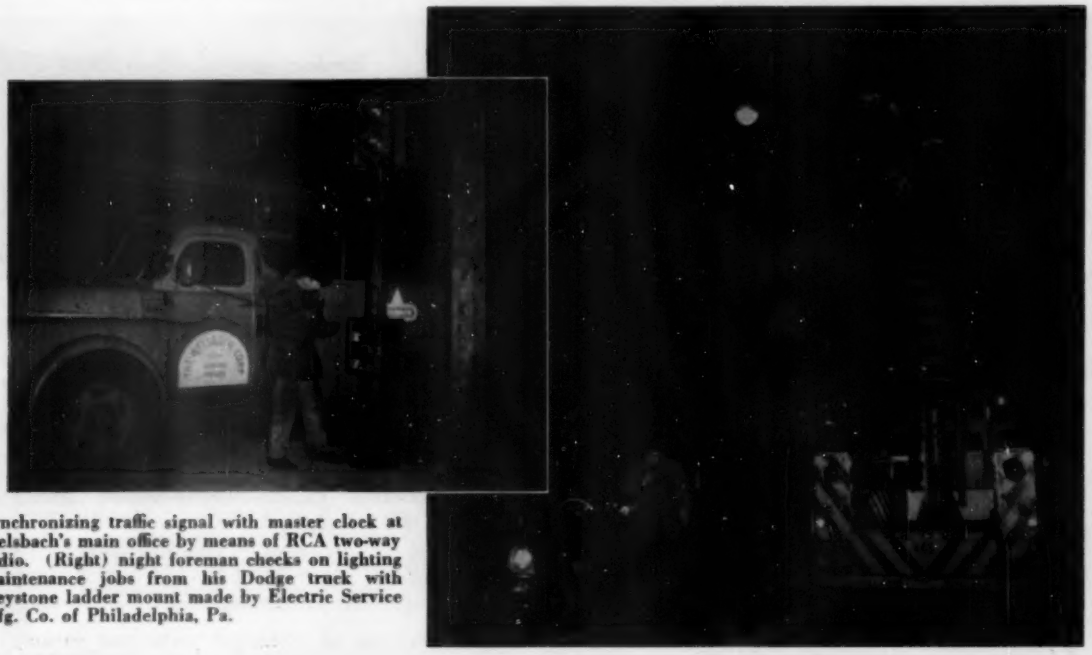
Get Complete Information

L-M provides a complete, highly styled lighting line of incandescent, mercury vapor, and fluorescent units, with excellent application engineering help for utilities, municipalities, consultants and subdividers. Ask the L-M Field Engineer or Lighting Engineer about L-M outdoor lighting equipment. Or write Line Material Industries, Milwaukee 1, Wis. In Canada: Canadian Line Materials, Ltd., Toronto 13, Ontario.

331-R.

LINE MATERIAL Industries Outdoor Lighting

McGRAW-EDISON COMPANY



Synchronizing traffic signal with master clock at Welsbach's main office by means of RCA two-way radio. (Right) night foreman checks on lighting maintenance jobs from his Dodge truck with Keystone ladder mount made by Electric Service Mfg. Co. of Philadelphia, Pa.

Two-Way Radio Helps Keep New York's Lights Burning

JAMES R. CAMPBELL, *District Manager*
The Welsbach Corporation
and
ANDREW M. HILLIARD
Radio Corporation of America

ON a recent rainy night in Brooklyn, N. Y. a traffic light at a critical intersection on Flatbush Avenue began flashing erratically. It flicked from red to green and back to red again in seconds. Traffic began piling up in all directions as horns blared and tempers flared. One motorist jumped from his car and dashed into a drug store to call police headquarters. Three minutes later a Welsbach service truck appeared. The trouble was a faulty timer. The serviceman returned to his truck and reached for the microphone on the dashboard. Via radio communication, he synchronized his stopwatch with the master clock located in the Welsbach radio dispatcher's office. In seconds he had reset the timing mechanism and Flatbush Avenue simmered down.

Radio Utilizes Manpower and Equipment

Welsbach's mobile RCA two-way radio is on the air 24 hours a day, seven days a week. Fifty radio-equipped service trucks patrol Brooklyn and Queens. As soon as a trouble report is received the dispatcher radios the truck assigned to that area. So important has mobile radio become in lighting and traffic control maintenance in New York City, based on Welsbach's experience with this communications tool, that the Department of Water Supply, Gas and Electricity and the Department of Traffic have written radio clauses into their contracts. They require all firms holding maintenance contracts with the city to have a specified number of radio-equipped vehicles in operation always.

Says Lawrence F. Merow, assistant district manager of Welsbach's street lighting division: *Before we had radio, we probably would have spent an hour tracking down a truck to handle that Flatbush Avenue job. We would have had to delay any action until one of our drivers contacted us by telephone. And then, we might have had to send him miles out of his way to handle the repair job. Time is money, since our contract contains a penalty clause if a repair job is not completed within a given time period. Before radio, our time limit often elapsed before we could even contact a serviceman. Not now.*

Radio Saves Time, Mileage

Radio also saves truck time and truck mileage. In pre-radio days when a report on a fallen pole was received late in the day, the dispatcher would have to wait until one of the five-man boom trucks returned to the yard before any action could be taken. The truck would then backtrack and remove the pole. This resulted in overtime for all five men, wasted mileage, and delayed repairs. With radio, however, the dis-

patcher contacts the boom truck as soon as the fallen pole report is received.

After the last job is completed on the day shift, each foreman radios in his material requirements for the following day. This gives the storekeeper ample time to get materials together so they can be loaded on the trucks as soon as they enter the yard. Otherwise, the storekeeper would have to wait until the trucks return before he would know their requirements.

Veteran Foreman Tim Healy reports: *Radio is the finest piece of equipment we have had in my 20 years with the company. Before radio I had to search for a telephone to find out what was going on. Now I just push the microphone button and I'm everywhere at once.*

Serviceman James Freeman sums it up: *Radio makes my job a lot easier.*

The system is controlled from a 60-watt RCA base station which can be operated from any of three positions located around the dispatcher's table. Two or three dispatchers are always on duty.

Founded in Philadelphia in 1877, the firm maintains branches in seven cities and has diversified its activities to include construction of water treatment and sewage treatment plants; manufacture of ozone generators and ionizers; production of valves, fittings and corporation tapping machines for use with gas and water systems. Construction of airport lighting systems is also one of the firm's many activities.

Mack truck used for pole installations with hydraulic boom made by the Thompson Trailer Corp. of Pikesville, Md.

What Street Lighting Costs in Virginia

FIVE private utilities provide the street lighting for 192 municipalities in Virginia. The 53 communities ranging in size up to ***Lynchburg*** and ***Roanoke*** served by the Appalachian Electric Power Co. have the simplest street lighting rate since there is a single charge for incandescent lamps. Price per lamp per month is as follows:

Size in lumens	Overhead	Whiteway
1,000	$1.30	$....
2,500	1.65	2.40
4,000	2.05	2.80
6,000	2.50	3.25
10,000	3.25	4.00

Public schools are served at two cents per kilowatt hour. Services to certain municipalities for power for pumping, sewage disposal, etc., are covered by special contracts.

Lamp Charge

The 13 towns served by Eastern Shore Public Service Co. of Virginia pay a circuit charge of $0.0165 per foot for overhead line and $0.088 per foot for underground cable circuit. There is also a lamp charge per year according to lamp size and mounting, as follows:

On Distribution Pole Series Multiple			Bracket 4' to 6'	Mast Arm 8' to 15'
100 cp	85 watt		$13.20	$14.30
250 cp	175 watt		24.60	25.70
Pendant Luminaire				
400 cp	268 watt		37.40	38.50
600 cp	370 watt		48.40	49.50
mercury vapor, 250 watt			67.10	69.30
On Lighting Standard				**Twin Arm**
400 cp	268 watt	57.20	59.40	$125
600 cp	370 watt	68.20	70.40	140

For each 35-foot wood pole required exclusively for street lighting in municipal parks and parking lots there is a pole charge of $13.30. For photoelectric control for individual or small groups of lamps there is a charge of $15 per year for each control unit. The lamps are lighted from dusk to dawn for approximately 4,000 hours per year.

The 12 towns served by Northern Virginia Power Co. are charged the following rates:

	Size in Lumens			
Type	1,000	2,500	4,000	6,000 10,000
Scroll Bracket	$1.25	$1.80	$2.35	$2.90
Mast Arm	1.35	1.90	2.45	3.00
Mast-Arm-Ornamental				
Wood Poles-Overhead		2.35	2.70	3.20 $4.50
White Way (Steel Poles-Overhead)		2.60	3.00	3.50 4.85

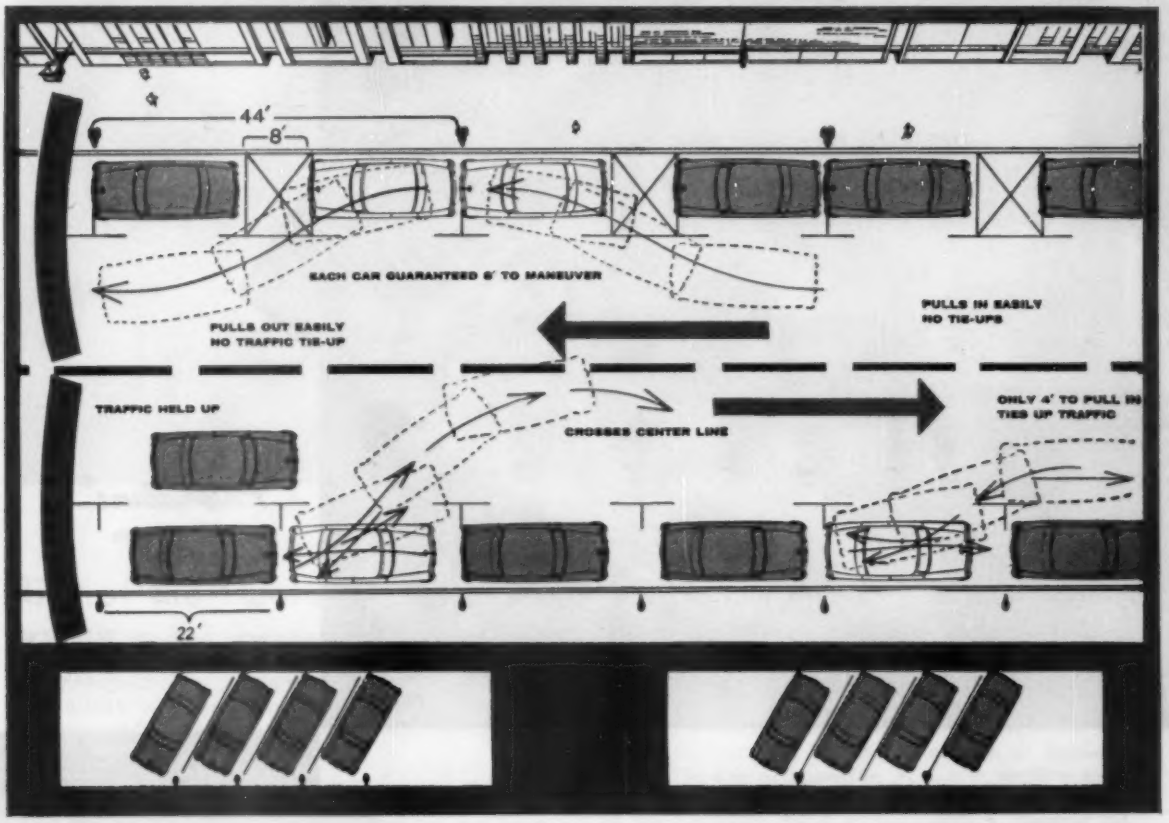
Below are the rates for street lighting charged the 9 towns served by Old Dominion Power Co.:

Series or Multiple Incandescent System Lumens	Standard Overhead Rate All Night	Half Night	Ornamental All Night	Service Rate Half Night
1,000	$13	$13	$18	$18
2,500	18	18	24	24
4,000	25	22	32	30
6,000	34	30	42	38
10,000	48	44	60	56
Mercury Vapor Initial Lumens				
10,000	55	53	67	65
15,000	60	57	72	69
20,000	64	60	76	72

The 105 towns on the lines of Virginia Electric and Power Co. are charged as follows for all night (4,000 hours per year) incandescent street lighting:

Lumens	Overhead Series	Specia Poles	Underground Series
4,000	$22.50	$37.50	$61.50
6,000	27.50	42.50	66.50
10,000	41.00	56.00	80.00
15,000	51.00	66.00	90.00

HOW TO MAKE THE MOST OF EXISTING PARKING SPACE



Only Dubl-Duals get the most out of existing parking space and reduce metering costs 27% in the bargain

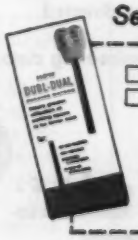
The drawing above shows clearly how Dubl-Dual Parking Meters insure eight full feet between cars while single meters often reduce space to only four feet. Note too how traffic flows more easily and safely when cars are assured adequate room to maneuver into and out of the parking spaces.

But greater utilization of parking space is only part of the Dubl-Dual story. Since Dubl-Duals are two separate meter mechanisms in a single case, initial cost is lower. And installation costs are reduced because only half as many meter stand installations are required. Dubl-Duals also reduce collection and inspection time . . . every other meter "stop" is eliminated.

There are lots of sound, proven reasons why your community should investigate the economy and efficiency of Dubl-Dual metering. Send the coupon for complete details in the new, booklet on Dubl-Dual Parking Meters. Dual Parking Meter Co., Subsidiary of Rockwell Manufacturing Co., Pittsburgh 8, Pa.

DUAL PARKING METERS
another fine product by
ROCKWELL

Send for this free booklet today

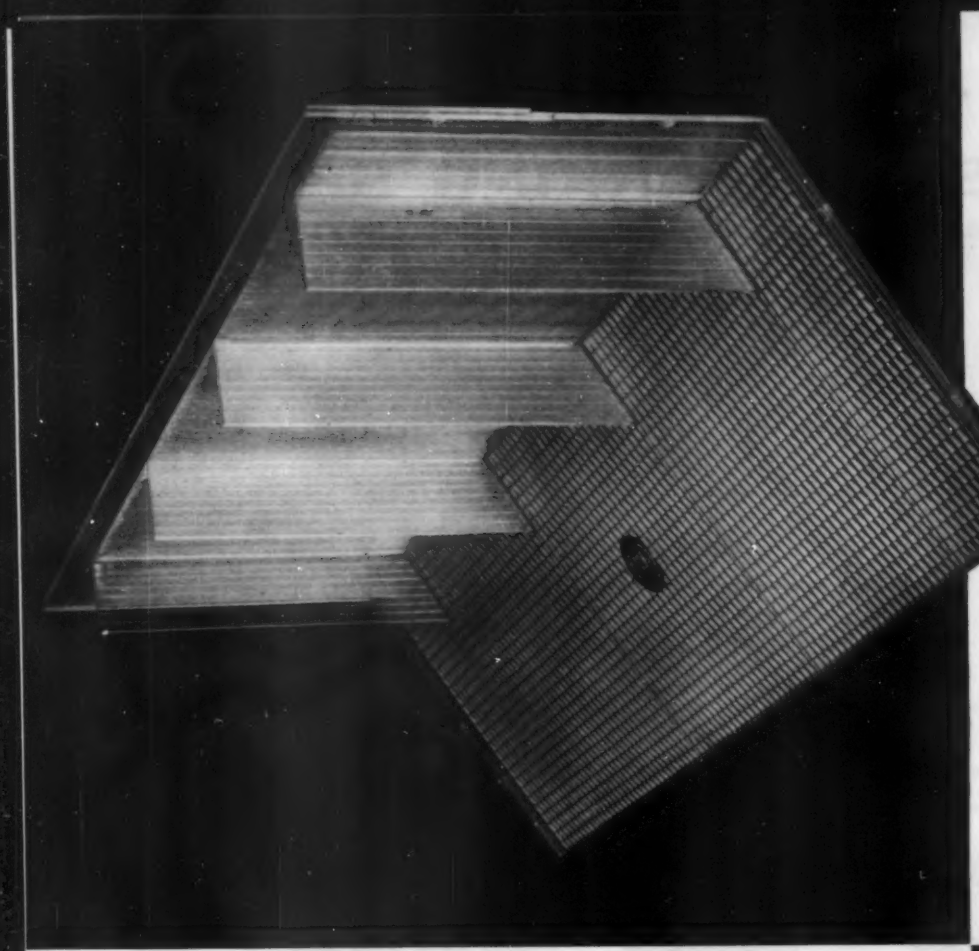


☐ Please send complete information on Dubl-Duals.
☐ Please have your representative call.

Name_____ Title_____

City_____

State_____



Holophane
Prismalume®
No. 4800 Prismatic
Acrylic Plastic

HOLOPHANE LINEAR REFRACTOR for Westinghouse Type HUS-Fluorescent Street Luminaires

A new basic concept in street lighting... using established principles of prismatic light control to provide highly effective fluorescent illumination with very low glare. By test, the veiling glare of these new luminaires is only a fraction of that resulting from conventional fluorescent types... The advancement in lighting efficiency is noteworthy. Holophane Linear Refractors can increase the amount of useful light directed to pavements and sidewalks by over 50%. *Write for engineering data.*

HOLOPHANE COMPANY, INC.
Lighting Authorities Since 1898 • STREET LIGHTING DEPARTMENT • NEWARK, OHIO
THE HOLOPHANE CO., LTD., 418 KIPLING AVE. SO., TORONTO 14, ONTARIO

Copyright 1958, Holophane Company, Inc.

Fluorescent lights in Statesville, N. C., are mounted 30 feet high on Union Metal poles spaced 75 feet apart and staggered.

Rise of the Fluorescent Street Light

IN 1948 the first experimental use of fluorescent lighting specifically designed for outdoor use in this country was put on trial by the Public Lighting Commission of ***Detroit, Mich.***

Basically, the fluorescent lamp and its enclosing luminaire had these advantages:

- It required less shielding.
- Mounted transverse to the roadway it provided broad bands of pavement brightness in the driver's line of vision.
- Its color was acceptable.

The red dresses in store windows and the red lips of our feminine companions were sparkling true life colors once again.

The weakness in the source was its extreme sensitivity to changes in amient temperature. Fortunately for the outdoor lighting industry, a lamp was developed by General Electric's Large Lamp Department that had a maximum output at close to 0° F. and only a minimum decrease from maximum well over 50° F. This probably can be considered the one single advancement that gave the product its biggest single push.

The Luminaire

The industry had used for decades a relatively compact, lightweight fixture made of glass for the refractor and aluminum for the reflector. The first fluorescents made use of the 8-foot tube which, in itself, was a problem in size, weight, and rigidity. It was soon found, however, that a 6-foot lamp was more practical.

The pole manufacturer also had a brand new problem. At first the fluorescent fixture was clamped close to the pole. However, it soon became apparent that the units had to go out over the road for the maximum in light output utilization. Various schemes of tilting the units and thus projecting the light toward the road were tried on units that were close coupled to the poles but the real success has been accomplished by actually locating the unit closer to the center of the driving lane on extended brackets—some 12 to 14 feet.

Another notable pioneer was the Dayton Power and Light Co., with the historic installation at ***Oakwood, Ohio.*** The ***City of Statesville, N. C.*** was the first to install a complete downtown system, using over 100 units of the four-lamp, 6-foot design. Entire business districts are now being relighted, notably those of ***Minneapolis*** and ***Dallas.*** Fluorescent equipment was a new, modern tool that would greatly enhance the beauty of the downtown areas as well as provide real comfort and safety to the traveling public.

With enthusiasm mushrooming all over the country, fluorescent lighting came of age in 1952-1956 with the sale of fluorescent equipment doubling each year.

K. D. Tobin
General Electric Co.
Hendersonville, N. C.

Night Lighting

WHEN the Interstate Highway Act came to the fore no mention was made of lighting. This seemed to indicate ignorance of the greatest night safety factor: night lighting. Night accidents in Minnesota, for instance, accounted for 51% of the total. While the new highways should reduce accidents, such hazards at intersections, headlight glare and grade separations made lighting necessary for safety. Fortunately some states, including the State of Minnesota, realize this and now plan to light these hazardous areas.

—G. G. Wheeler, Manager, Municipal Sales
Northern States Power Co., Minneapolis, Minn.

Teamwork Made Houston One of the Best Lighted

MORE people usually means more cars, more traffic congestion and better street lighting needed. Houston's population has grown from 165,000 in 1925 to 385,000 in 1940 (at the rate of 14,670 persons per year) to 596,000 in 1950 (21,000 per year). Street lighting has kept pace with this rapid growth. The rate of growth since 1950 has been close to 30,000 per year.

With the cooperation of the mayor, county judge, Commissioners Court, the Houston Lighting and Power Co., and downtown business leaders, Houston, Texas started to relight and expand its lighting system. The first 79 mercury-vapor lights were turned on around the $14 million Harris County courthouse on March 18, 1952. The entire downtown business district had been relighted within a year—more than 190 blocks of high-light-level mercury-vapor lamps. Main Street was already lighted to "whiteway" levels by eight standards per block with twin 10,000-lumen units. The four feeder streets through the downtown area had six 10,000-lumen lights per block.

Traffic Fatalities Cut

Police Department records show that after relighting in one industrial area alone, pedestrian traffic fatalities were reduced 70%.

A well-planned, modern street-lighting system benefits the citizens far more than the cost of the program. Direct benefits are the reduction in crime; the reduction in number and severity of traffic accidents; and the increase in property values. Other benefits are the increased nighttime business activity, the attraction of new residents and desirable industry, and the individual citizen's pride in Houston.

The downtown relighting program numbers 1,266 General Electric mercury-vapor lights, largest installation of uniform, high-level, modern street lighting in the nation.

The arterial lighting program, using 400-watt mercury-vapor lights, has grown from 33 units installed in 1950 to more than 4,250 units today. This program is proceeding rapidly. The city has cooperated with the Texas Highway Department in the lighting of expressways within city limits.

Residential Street Lighting

We are especially proud of our residential street-lighting program consisting of 12,000 2,500-lumen incandescent lights. More than 5,200 of these were installed in cooperation with the citizens, under the city's residential street-lighting program. This program provides for the installation of modern 2,500-lumen, enclosed luminaires on 20-foot Union Metal steel poles with underground wiring and 240-foot spacing in any residential area if the residents, a civic club, or the developer, will deposit with the city the first five years' operation cost as charged by the utility.

At the present time, the charge is $30 per unit per year. Usually there are four to eight houses per unit, which means a payment of about $30 to $40 per house. Using this same basis, more than 30,000 houses in Houston have modern residential street lighting.

Our program, we believe, is unique. It proves that citizens recognize the value of street lighting in improving property value, discouraging prowlers, and making their community a better and more rewarding place in which to live.

W. CLINTON OWSLEY
Formerly Director of Public Service
Houston, Texas

Luminaires Bought for Connecticut's 53-Mile Turnpike

COMMISSIONER Newman E. Argraves of the Connecticut State Highway Department reports equipment is being installed for lighting the 53-mile stretch of the Connecticut Turnpike as announced in THE AMERICAN CITY, July 1957 ("Connecticut Lights 53 Miles Continuously," p. 159). General Electric Company has supplied 3,250 mercury luminaires and approximately 1,000 fluorescent luminaires and Fluoro-flood fixtures.

Four hundred mercury units of 21,000-lumen intensity will carry the brunt of the illumination job while high-output 49,000-lumen Form 402 mercury luminaires will be installed on wide toll plazas. Fluorescent luminaires will be used for lighting underpasses, and Fluoro-flood units will provide illumination of highway guide signs for increased nighttime visibility.

Best Safety Record

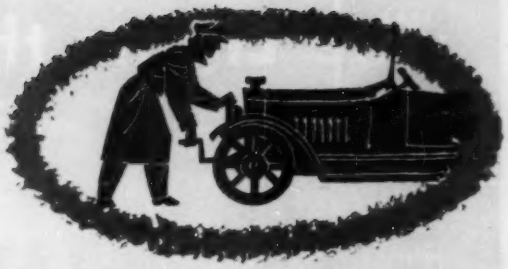
With the finest traffic safety record of any state in the nation, Connecticut officials feel that still more fine roadway illumination will further reduce nighttime traffic fatalities. The first seven months of the year showed Connecticut with an average of 2.6 traffic deaths per 100 million vehicle miles traveled. The national average for the same period was 5.5 deaths. Only the wholly urban District of Columbia, with an average of 2.4 deaths per 100 million vehicle miles, outranked Connecticut in the National Safety Council listing.

This 53-mile stretch has 50 interchanges. To light these areas and leave the remainder of the highway unlighted would impose "severe handicaps" on motorists. Said Commissioner Argraves: "It simply is not possible for the eye to readjust continually to darkness, then light, then darkness again at frequent intervals for 53 miles." Continuous lighting, according to the highway commissioner:

- Helps reduce nighttime accidents and fatalities by providing brightness contrast to permit obstacle recognition.
- Contributes to driver comfort and thus tends to lessen the early evening peak loads by stimulating greater after-dark use.
- Increases roadway capacity through traffic placement more nearly in accord with the daytime pattern.

Results of a public opinion survey of highway users show that the public is overwhelmingly in favor of continuous lighting on the highway.

Cranking BY HAND is old fashioned



There was a time when hand-cranks were used for many things . . . to start an automobile . . . to run the washing machine . . . to pump water and to wind the clock. Maybe they were the "good old days" but they are past and the hand-crank is now an antique curiosity.

Today's modern designs call for automatic operation. This is true wherever you look . . . and it applies to parking meters, too.

EXPIRED
only the modern PARK-O-METER gives you all these advantages
1 Completely automatic, simple, one-hand operation.
2 No exposed working parts to be affected by weather or to tempt vandalism.
3 Adjustability for Split-rate as well as conventional rate settings and for any coin combination and time limit from 6 minutes to 72 hours.
4 Adjustment to change time, coin and rate combinations can be made without shop overhaul.
5 Accepts Pennies, Nickels, Dimes, Quarters or Tokens, any one or more, or all five through a single coin slot.

The Lights that REACH OUT to say "Welcome!"

New Crouse-Hinds
THERMAL CONTROL

Beam patterns are actuated by a simple thermal device which aims toward runway center when lighting intensity is increased . . . directs beam along runway edge when intensity is diminished. This device replaces the reversible electric motor formerly used, eliminates miles of 3-wire control circuitry, pares installation costs to a minimum.

NEW CROUSE-HINDS Type HRC

High Intensity Runway Marker Lights

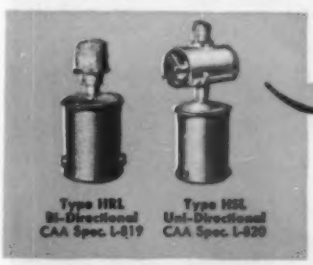
MAKE LANDINGS SAFER

Type HRC markers deliver a higher light output from 500-watt, 115-volt prefocus lamps. Their 137,000 candlepower illumination can be seen 2,360 feet away by the pilot, with ⅛-mile night time visibility.

The tower operator controls brightness and directional pattern of HRC illumination by means of a control panel which includes an indicator, calibrated in degrees of weather visibility.

Under normal conditions, lights burn below full capacity, and beams focus directly up and down runway edges.

In bad weather, when the tower increases brightness to full, the beam pattern automatically "toes in" toward the center of the runway—providing light to pilots where it is most needed under poor visibility conditions.



HIGH INTENSITY CROUSE-HINDS FIXED-FOCUS RUNWAY MARKERS

Five-stage brightness control (remote) on each of these markers meets the requirements of varying visibility conditions

Call on Crouse-Hinds for planning aid and cost estimates by a field engineer. Crouse-Hinds makes all three types of high-intensity runway markers, plus a wide selection of airport lighting equipment, including floodlights, ceilometers and transmissometers.

CROUSE-HINDS COMPANY

Main Office and Factory: Syracuse, N. Y.
Crouse-Hinds Company of Canada, Ltd.: Toronto, Ont.

Offices: Baton Rouge Birmingham Boston Buffalo Chicago Cincinnati Cleveland Corpus Christi Dallas Denver Detroit Houston Indianapolis Kansas City Los Angeles Milwaukee New Orleans New York Philadelphia Pittsburgh Portland, Ore. Salt Lake City St. Louis St. Paul San Francisco Seattle Tulsa Washington RESIDENT REPRESENTATIVES: Albany Atlanta Baltimore Charlotte Chattanooga Jacksonville Reading, Pa. Richmond, Va. Shreveport

Springfield's experiment in traffic light control for the protection of emergency vehicles: (above) the transmitter and (right) the receiver installed on traffic signals. The system is being tried out on three traffic signals. Left to right: Francis Saunder, first assistant fire chief; Douglas Bell, Eagle Signal Corp., Moline, Ill.; and author Hartley.

Traffic Signal Control Protects Emergency Vehicles

By JACK HARTLEY, *City Traffic Engineer*
Springfield, Ill.

A SYSTEM of traffic light control for the protection of emergency vehicles has been installed on a trial basis in Springfield, Ill. by the Eagle Signal Corporation of Moline, Ill.

The device attached to the vehicles actuates operation of three traffic signals on Ninth Street, and is expected to facilitate maneuvers of police and fire-fighting equipment through congested streets and busy intersections.

A police accident car, a fire truck and the fire chief's car, have been equipped with a radio transmitter on the fender of the car to control the three traffic signals. As the emergency car approaches the signal, the light turns green and remains green until five seconds after the car has passed through the intersection. A red beacon also flashes from the signal post to warn approaching traffic that something unusual is occurring.

The installation is in Springfield on a 90-day trial, beginning February 1. It has been most helpful to the police and firemen driving the vehicles. As the general traffic public has not spoken, it seems satisfactory from that viewpoint too. If traffic moves smoothly, we hear nothing—if it gets into a snarl, no matter how little or big a snarl, we hear plenty about it! So I think the system has improved traffic conditions for all concerned.

Future Installation Plans

If the city decides after the trial period to purchase emergency control equipment, bids will be offered on a priority basis. They will include installation of equipment on all the traffic signals on North and South Ninth streets (as compared with the three-signal installation in the trial), and on all signals on South Grand Avenue. If the system proves helpful, installation will be considered on signals at all outlying intersections, and finally on all signals in the business district.

Continuous Origin-Destination Surveys

ORIGIN and destination surveys should be continuous. This was urged by S. T. Hitchcock, Chief of the Division of Highway Transport Research, U. S. Bureau of Public Roads, in a paper delivered at the American Society of Civil Engineers annual meeting.

Knowing the number of vehicles which use a street during a given period is not sufficient. "These counts reveal only existing volumes and are not necessarily indicative of the route preference of the drivers," Mr. Hitchcock said. It is not possible to ascertain where new highway improvements should be located merely by observing traffic flow at selected locations.

The Port of New York Authority's continuous sampling plan is designed to determine origins and destinations of vehicular trips across the Hudson River and to and from Staten Island. This program calls for approximately 100,000 interviews during a year's field work. That's the way to do it.

Traffic Smoother in Chattanooga

DURING 1957 we continued a program of standardization on all types of traffic signs and installed 1,065 new traffic signs. We have concentrated on regulatory signs such as *Stop, Yield, One-Way, Speed Limit* signs.

Lanes and Center Lines

Painting lane and center lines is still one of the simplest and most effective means of increasing street capacity. On an average-width street when lane and center lines have been provided, the capacity of that street can actually be doubled. In addition to paint we are using Prismo Plastix to make lane and center lines, and crosswalks. We hope to increase the amount of plastic used this coming year since we obtain longer life and get maximum visibility during the winter months when the streets are normally wet and there is a great need for good visibility. During the past year we installed 29,000 feet of plastic lane and center lines.

Traffic Signals

Chattanooga s new traffic signal system for the downtown area, installed during the past year, is the most modern obtainable. (THE AMERICAN CITY, November 1957.) It operates on the principle of counting stations at strategic locations about the city. With this arrangement the instantaneous traffic volume can be recorded and this information supplied to the master.

The master controller, in turn, interprets this information and sends out the proper impulse to each secondary controller located at each signalized intersection. Thus the master controller selects the cycle length which may vary from 55 seconds to 90 seconds. It selects the direction of traffic that should be favored —either inbound, outbound or average.

The secondary intersections, through their local controls, are capable of selecting variable cycle splits. This means that the green line alloted to each street can vary with the cycle length and the offset that is in use so that green time is alloted, based on the amount of traffic that is present and needs to move through the intersection.

With the system, we have progressions on our downtown streets at an average speed of about 25 mph. Since this system has been in operation, we have been able to handle maximum traffic with much shorter periods of congestion. We have traffic flowing freely within 20 minutes after the outbound or inbound peaks. However, we will not obtain the maximum efficiency until parking is removed from most of our downtown streets. We have actually modernized 15 intersections during the past year and have installed traffic signals at 18 new locations. We also installed pedestrian indications at 10 locations in the downtown area.

To obtain the maximum efficiency from our arterial streets, during the past year this department removed parking from 22 miles of arterial streets. In fact, during the last year Chattanooga made the greatest improvements trafficwise in her history.

MARBLE HENSLEY, *Director*
Traffic & Planning
Chattanooga, Tenn.

Parking Meters at Union Station

CLOCKLESS type parking meters have been operating at Union Station, Washington, D. C. since May 1957.

These Parkit-Lockit meters were installed and are operated by Auto Parks, Inc., 762 Lancaster Pike, Devon, Pa., F. R. Keator, president. These meters averaged approximately 370 dimes per stall space for the first full month of operation.

This is a clockless, hidden-coin meter. Time starts when coin is deposited, same as with clock-type meter. Paid-for time expires in 30 minutes. The parker deposits 1 dime for each 30 minutes up to 2 hours. The meter holds 4 dimes. The attendant inserts a key every 30 minutes, insuring full paid-for-time, permitting 1 coin to show. The coin drops when the key is removed. Attendant issues violation when coin does not show. There is no red flag to indicate violation. Meters are enforced 24 hours every day.

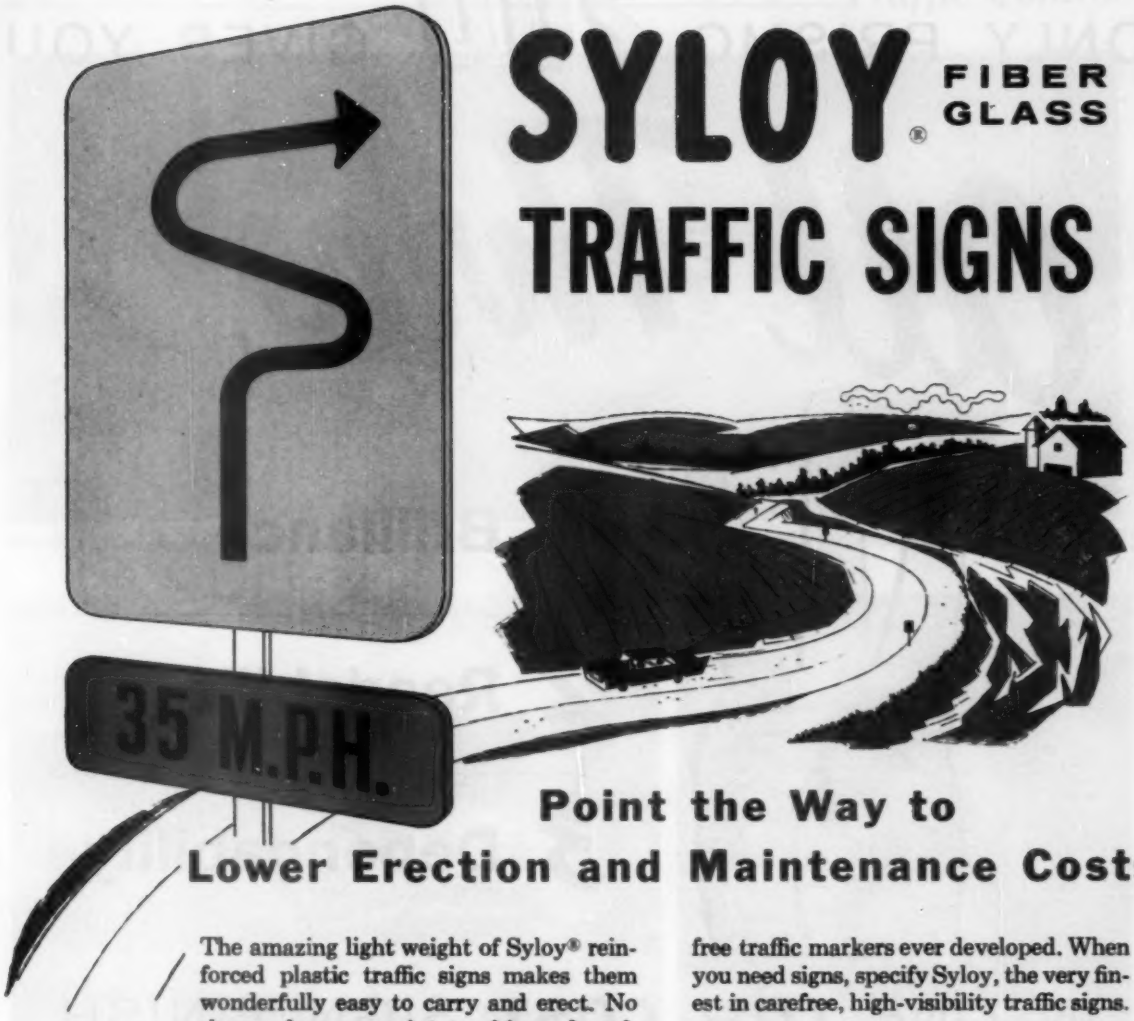
I might say as manager of The Washington Terminal Company that the greatest benefit derived from these meters is not the rental we receive but the convenience that the installation has afforded the traveling public. Since installation of the meters parking space is usually available, whereas prior to installation the area was used by all-day parkers, many of whom had no interest in the station.

We have received many compliments from our patrons on the improvement in the parking situation at Union Station as a result of the installation of the parking meters.

A parker operates a clockless meter at Union Station. Instructions are posted below the meter.

M. H. LINGENFELTER, *Manager*
Union Station, Washington, D. C.

SYLOY® FIBER GLASS TRAFFIC SIGNS



Point the Way to Lower Erection and Maintenance Costs

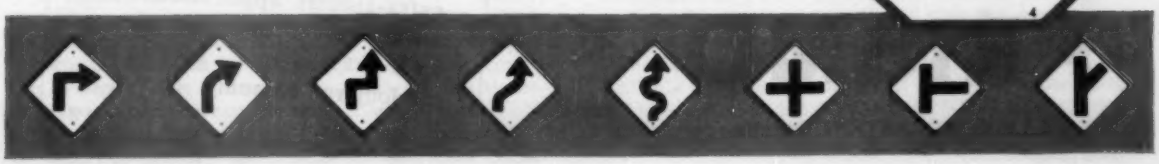
The amazing light weight of Syloy® reinforced plastic traffic signs makes them wonderfully easy to carry and erect. No sharp edges, no paint to chip and peel, complete resistance to weather and other normally destructive forces, astounding strength—these features, plus many others, make these the most maintenance-free traffic markers ever developed. When you need signs, specify Syloy, the very finest in carefree, high-visibility traffic signs.

For complete information and a full-size test sign, just send us the coupon. Then see for yourself how Syloy signs will fit into your traffic-control picture.

Reinforced Plastics Division GENERAL THE GENERAL TIRE & RUBBER CO.

THE GENERAL TIRE & RUBBER COMPANY
Reinforced Plastics Division • MARION, INDIANA

THE GENERAL TIRE & RUBBER COMPANY
Marion, Indiana
☐ Please send me information on Syloy
☐ Please send me a sample Syloy sign
Name_____
Title_____
Company_____
City_____
State_____
4



ONLY PRISMO '200' GIVES YOU

all Three

1 Brilliance

2 Readability

3 Dependability

IN ONE **LOW COST** SIGN FINISH

Prismo research laboratories guarantee their "200" Hi-Reflective Sign Finish for complete angularity and easy legibility at L-O-N-G distances, day or night. It is further guaranteed to give years of service under all conditions, equally brilliant in fair or rainy weather.

This amazing low-cost finish passes the toughest tests on all kinds of traffic signs . . . is effective **with no peeling** on metal, hardboard, wood, rubber, plastic or polyester resin board. And you can apply it with spray, brayer, roller coater, brush, silk screen or automatic sign shop equipment.

For more details, write for Prismo Bulletin P-256.

Ask about Prismo "Smoothie"

A super-smooth sign finish now available in sizeable quantities for extra-special applications. Its advantages: Ultra-smoothness . . . Less dirt pick-up . . . easy to use . . . long-run economy.

PRISMO

SAFETY CORPORATION, Huntingdon, Pennsylvania

Overall view of the Ashe Street 275-car parking lot with ticket-issuing equipment and only one attendant, at Greensboro, N. C.

Cars entering at right and leaving at left of attendant's booth.

Remote entrance guarded by the automatic gate.

Ticket Spitters Please Both Parkers and City

THE Ashe Street parking lot of 275 spaces is the largest municipal parking lot in Greensboro, N. C. Equipped with ticket-issuing machines made by Automatic Parking Devices, Inc., Detroit 13, Mich., the lot is operated on a self-park attendant basis, at 5c per half hour.

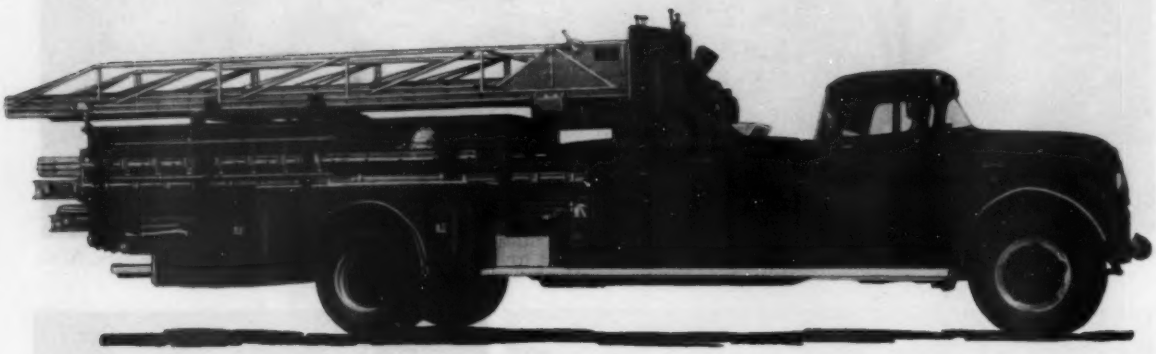
The ticket spitters are installed at two entrances. One entrance is near the attendant's booth and is controlled by the spitter alone. The other entrance is too far from the booth to be observed by the attendant, thus requiring gates to restrict entry to those persons who remove time-stamped tickets from the spitter. The attendant works the one exit from the lot where he receives the parking check from the customer and collects the fee. The lot is also equipped with a counting system which automatically turns off the ticket-issuing equipment when the lot is filled.

The lot is well located for shopper and business-call parking, its primary use. Prior to operation under the present system the lot was operated with parking meters set at 5c per hour. Under the meter system this lot was utilized too much by all-day parkers, thereby limiting its use by persons desiring short-time parking. It was felt that a better service could be rendered by converting the metered lot to the present system of operation. Persons parking here pay for only the time they are on the lot and do not have to be concerned with getting a ticket for overtime parking.

The present method of operation has proven successful and is liked by the public. Use of the lot has been increasing since it was converted to the present system; therefore our statement that the system has been accepted by the public is well-founded. During December 1957, slightly more than 24,000 vehicles utilized this lot with the maximum single day's use yielding a turnover of 5.17 cars.

DONALD P. INGOLD
Traffic Engineer
Greensboro, N. C.

Announcing a New



C-65 Aerial ladder on G.M.C. 554 chassis.
Note — Chrome plated door latches are optional extra.

The American LaFrance Custom Built 65 ft. all steel aerial ladder, proved the finest in the fire service, now available on Commercial Truck Chassis!

This combination is the greatest value ever produced for the fire service. The fire department requiring a 65 ft. aerial ladder need no longer defer purchase due to budget limitation.

The all steel aerial ladder is standard custom design, material, and strength. The ladder is constructed of corrosion resisting Cor-ten steel with all rails, rungs, and trussing electrically welded to make a homogenous unit of each section. Each main rail of every section is hollow I-beam reinforced construction for maximum strength and stability.

Full hydraulic power is provided with one man control for all aerial ladder operations. Two six inch inside diameter raising cylinders and all operating power units and controls are standard custom built. (The same units are used on all American LaFrance aerials, including 100 ft.) There is ample power for every emergency requirement and hoisting hose for water tower operation. Every operating unit has been service proved.

Five large equipment storage compartments are provided. Four are enclosed type. The large equipment storage box above the ladder bank is 52" wide x 180" (15 ft.) long x 9" deep providing 48.75 cu. ft. of storage space. Four enclosed equipment storage boxes are provided, two on each side of the ladder bank. These large enclosed compartments have the following inside measurements:

Front compartment, each side, 20⅞" long x 28⅜" high x 20" deep. Rear compartment, each side, 32⅝" long x 28⅜" high x 20" deep.

The standard selection of ground or wall ladders is in agreement with the recommended selection of the International Association of Fire Chiefs, National Board of Fire Underwriters, and the National Fire Protection Association as listed in Specification No. 19. Ladders are Alcolite aluminum alloy. The standard selection is:

1-50′ 3-section, extension
2-35′ 2-section, extension
1-28′ 2-section, extension
1-24′ 2-section, extension
1-20′ Single roof
1-16′ Single roof
1-14′ 2-section, extension

No compromise with ladder safety or operating power!

Combination . . .

by AMERICAN LAFRANCE

FEATURES . . .

- Short overall length.
- Wide spread (145") ground jacks.
- Automatic indication of maximum load cantilever, top end supported, and water tower operation.
- 1/4 fold life net compartment — waterproof.
- Equipment and tools for fire fighting.
- 222 feet of ground ladders.

Centralized Controls for Efficient Operation.

All power controls for aerial ladder operation mounted in control pedestal. Ladder operation protected by relief valve and automatic stops. Platform 94" diameter. The 65" diameter ball bearing turntable rings insure maximum ladder stability. No obstructions to interfere when ascending ladder or rescue work.

AMERICAN LAFRANCE CORPORATION
ELMIRA, NEW YORK, U. S. A.
LAFRANCE FIRE ENGINE—FOAMITE LIMITED
TORONTO, 9, ONTARIO, CANADA

For SAFEST school zone protection

use COLORFUL LONG-LASTING plastic

NEFSLABS® and NEFMATS®

TRAFFIC MARKERS, STRIPS, ARROWS

ONE-PIECE TRAFFIC LETTERS

Complete traffic safety in school zones is the constant and vital goal for every community. Pedestrians and drivers alike are always positively protected by bright, easy-to-read, permanent type pavement signs and safety markings.

BRILLIANT COLORS

Constantly increasing traffic volumes and speeds can be controlled most effectively with bright, highly visible, non-fade NEFSLABS and NEFMATS. And these plastic markings remain faithfully on guard for years because they are brilliantly colorful all-the-way through and self-cleaning. The variety of safety colors available now make color-code effectiveness possible for the first time.

TOUGH TRAFFIC-TESTED PLASTIC

NEFSLABS and NEFMATS have successfully withstood every rigorous condition from heavy ice bulldozing to searing jet blasts on air strips. Unexcelled performance and extra long-life continually prove these plastic markings to be the most reliable for year-round traffic safety and school zone protection. There is absolutely no scheduled replacement necessary . . . no dangerous gaps in essential traffic control.

EASY APPLICATION

Our cold, fast-drying adhesive is quickly applied by spray gun or brush and securely bonds NEFSLABS and NEFMATS to either asphalt or concrete surfaces.

Colorful NEFSLABS and NEFMATS literature is available

New Sales Territories are Open for Capable Representatives.

J. W. NEFF LABORATORIES, INC.

TRAFFIC MARKINGS DIVISION

STOCKERTOWN 5, PENNSYLVANIA

In Canada: 465 ST. JOHN ST., SUITE 2B, MONTREAL 1, CANADA

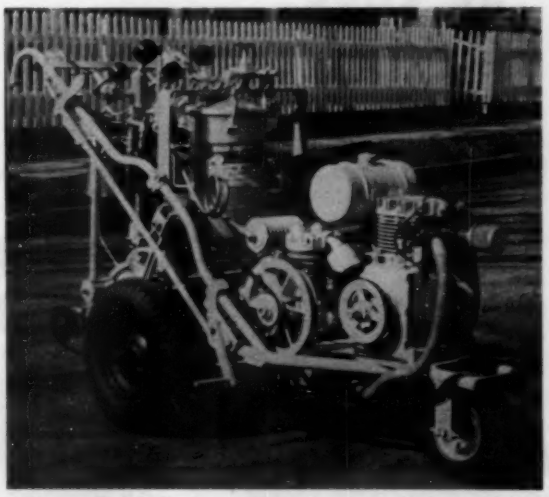
Technique of Spraying Sample Materials

SINCE Atlanta has been a user of Kelly-Creswell equipment for many years, I was naturally interested in the article by Ernest Brewer, the Purchasing Agent of the City of Atlanta, Ga., published in the March issue of THE AMERICAN CITY. (See "Buying Durable Traffic Paint," p. 193.)

The problem of applying samples of zone-marking material has been a growing one for many years. In addition to the small container which Atlanta's City Traffic Engineer Karl A. Bevins uses there is a small attachment for Kelly-Creswell portable machines that holds about 2 quarts. We also build a complete self-propelled unit for the application of these materials because some states apply as many as 175 to 200 samples, many of them having been formulated in their own shops.

We use a standard self-propelled portable striper and we design a special paint mechanism and a very efficient cleaning mechanism. In a specially designed 2-gallon DeVilbiss container we insert containers which have a capacity of 2 quarts or less. One traffic engineer accurately weighs the insert container with the material in it, and then after the test lines are applied, he reweighs the insert container with what is left in it, to determine exactly how much has been used.

In practice, this is what happens: In the first place, in order to get satisfactory application, it is necessary to use a self-propelled striper which has a very uniform traction. Many states will apply a 4-inch line on a four-lane highway, up in the center of the highway, where it gets little if any travel. At the end of 50 feet they turn 90 degrees to the right and then put a line across the highway. Some place along the line a 1-foot square piece of sheet metal is dropped, just ahead of the machine, and the 4-inch line is sprayed on it. They know accurately the weight of this sheet metal before the paint goes on it, and it is weighed immediately afterwards. From the line in the center of the highway, they get a weather test; from the line which is applied at right angles, they get the wear test; and from the line which has been applied on the sheet metal square, they get the drying time and also the bending tests that are necessary.



Self-propelled Kelly-Creswell unit for laying down test lines.

For your information we think that our test line machine has done a lot toward advancing the quality of zone-marking material to the high standards that have been obtained.

PAUL H. CRESWELL
Kelly-Creswell Company
Xenia, Ohio

All Drivers Say They Are Good Drivers

TRAFFIC education has fallen on deaf ears because most drivers are convinced they are good drivers. As a result, there has been a lot of energy wasted on existing programs, according to a preliminary study submitted to the Media Advisory Group of the President's Committee for Traffic Safety.

The findings were discussed by Walter G. Barlow, executive vice president of Opinion Research Corporation, Princeton, N. J. Mr. Barlow said the pilot project was one of the first attempted to "dig" into questions of what sell drivers on safety. The study was to determine if mass communications can actually motivate people to become safe drivers, and if so, what approaches, themes or actions promise to be most effective.

The majority of drivers—even those with traffic violation records—considered themselves above average drivers, said Mr. Barlow. The key to the driver's psychology seems to be his self-image of a good and law-abiding driver.

Of the groups interviewed, nine out of ten adults considered themselves above average in driving skills. When asked "How well do you handle your car? That is, aside from obeying the laws, how good a driver are you?"—

5% answered, "Probably one of the best on the road";
24% said, "Definitely above the average of other drivers they knew";
64% thought of themselves as "A little above average";
2% answered, "A little below average."

There were no takers for the rank of "Somewhat below average" or "A lot below average."

Everyone, actually 100%, of the persons interviewed who had previous violations classed themselves as above average as 98% of those with no violations.

The moral, according to Mr. Barlow, is that the "good and law abiding driver" is a powerful symbol for traffic safety—a symbol with which every driver can readily identify himself.

Traffic signs that insult the driver's self-image as a good driver are less likely to be observed. "Drive safely" implies that the authority does not look on the driver as a competent or responsible person. A more effective approach would seem to be, that "the good driver keeps up with progress on the highway."

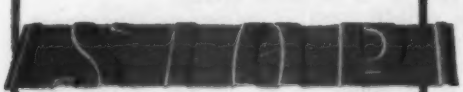
AS SURE AS THIS SIGN SAYS..

MIRO-FLEX MAKES THE BEST TRAFFIC CONTROL SIGNS

From *STOP* . . . to *SLOW* . . . to *NO PARKING*, Miro-Flex makes the finest traffic control signs available. The line is complete, too, with standard signs designed according to recommendations set forth in the *Manual on Uniform Traffic Control Devices* published by the Bureau of Public Roads, U. S. Department of Commerce. Of course you can get custom-designed signs as well. All Miro-Flex signs are quality made, embossed, and finished in materials to give you top value year after year.

WRITE FOR THE COMPLETE MIRO-FLEX SIGN CATALOG

WHY BUY AN EMBOSSED SIGN?



Miro-Flex embossed signs give three distinct advantages.

1. Greater legibility — the copy is in dimension.
2. Greater rigidity and strength.
3. Longer life.

THE MIRO-FLEX CO., INC.

Danville, Va. Makes Progress with Slum Eradication

DANVILLE, Va. (population 35,000) has entered the third year of its fight to eliminate slums and blight with the recertification of its program by the Public Housing Administration.

Following intensive study, Danville now has what it believes to be a complete and up-to-date system of codes and ordinances regulating buildings. Its new housing and zoning ordinances have been published in booklet form. The 1958 budget lists $50,891, appropriated from current funds, for code enforcement, and an additional item of $5,000 will be used for air pollution control.

The building inspector's office reports 251 new homes built during the first ten months of 1957. Sixty dwelling units, housing 76 families, were demolished, and an additional 31 structures, with 49 families, are marked for demolition.

A Comprehensive Plan

Progress is reported in implementing the comprehensive community plan. Programs are in the works for widening several streets as outlined in the major thoroughfare plan and three much-needed parking areas are being developed. The new Langston High School will be ready for classes in September, a community center has been built, and two new playgrounds were opened during the year.

Construction is under way on the sewage treatment plant which will divert 49% of the waste now emptying into the Dan River, and many new sanitary sewer lines have been installed.

In carrying out the neighborhood analyses element of the workable program, interest now centers largely in the Union Street Urban Renewal Project, an area of 295 acres west of the central business district. Many of the 1,041 dwellings are reported as blighted. An engineering survey of structural conditions, with family and house marketing studies, has been completed. A loan and grant application will be made to the federal Urban Renewal Administration early this year. Redevelopment will be for residential use.

The city recognizes its responsibility for the relocation of families displaced in urban renewal or other governmental activities and it has rehoused tenants from dwellings already demolished.

COURTESY OF CHRISTIAN SCIENCE MONITOR

"Mr. Cholmondeley Vrgybaranian of Towachihokepohke Falls, eh—well, I won't give you a ticket this time, but be more careful, hear!"

Bradley Washfountains Provide More Washing Facilities in Less Space

At the new Oakland (Calif.) Park Comfort Station, the circular 36-in. diam. Washfountain serves five to six yet requires but *one set* of piping connections. The semi-circular wall type model 36-in. bowl easily replaces four to five wash basins.

Both have foot-control of tempered water (no faucets to bother with or maintain), and self-flushing bowls to prevent collection of used water and overflowing.

Bradley Precast Drinking Fountains are made in single and multiple stream models and Stainless Steel Counter types.

For durability, economy of space and installation, maximum sanitation—specify Bradley Washfountains, made in 36-in. and 54-in. full circular and semi-circular models, standard and juvenile heights. Complete Catalog 5601 mailed free on request.

Catalog 5601 has data on all models

BRADLEY WASHFOUNTAIN CO.
2333 W. Michigan St.,
Milwaukee 1, Wis.

BRADLEY washfountains

Distributed Through Plumbing Wholesalers

Next time ... Stripe with *Cataline* ...

NO TRACK AFTER 6 MINUTES

Slow drying traffic paint ... a few uncooperative motorists ... and your striping job goes sour. The paint was at fault ... but you get the criticism.

Next time ... stripe with Cataline Reflective Striping ... it dries *FAST!* It's a special formulation based on Parlon® chlorinated rubber and millions of weatherproofed microscopic glass beads. Available as pre-mix or drop-on, Cataline will not track after 6 minutes ... is completely dry in 20. It gives you brilliant reflectorization and will far outlast any plain stripe you've ever laid.

Say good-by to smeared, hard-to-see pavement markings ... give your stripes a new lease on life ... with Cataline. Write for information, today.

Cataphote
CORPORATION
TOLEDO 10, OHIO / JACKSON, MISSISSIPPI

Manufacturers of: CATAPHOTE REFLECTIVE BEADS • CATAFLEX REFLECTIVE COATING • CATALINE REFLECTIVE STRIPING
CATATHERM REFLECTIVE PLASTIC STRIPING • TRAFFIC SIGNS • STREET NAME SIGNS

The 360-foot-square Homelite chain saw plant is located on 62 acres of Gastonia, N. C.

Why Homelite Selected Gastonia

Many articles are written on the local factors in a community that should attract an industry looking for a new plant site; here is the practical account of the actual reasons why a particular industry located in a specific town

THE *Gazette* of ***Gastonia, N. C.*** on November 23, 1957 offered its readers a 14-page special section telling the story of a new industry for Gaston County and Gastonia, N. C.—Homelite division of Textron, Inc.

"How do communities acquire industries such as Homelite? The *Gazette* pondered editorially.

When a city acquires an industry, the industry, of course, acquires a site. The reasons why the industry is pleased with the new location are the reasons the community acquired the industry. Here is a specific case.

Mayor Max Schneider finds a modern chain saw easy to use.

These were the prerequisites for the location of this chain saw plant:

1. The area must provide a supply of skilled labor such as machinists.
2. There must be good unskilled labor, male and female.
3. The average wages paid in the area must be favorable, for taxes and the costs of gas, water and electricity are subordinate to labor.
4. The new plant must be near a traffic center for air, railroad travel and freight.
5. The area must be in proper relation to the industry's markets.
6. The atmosphere of the community must be favorable toward industry, including the attitudes of existing industrial concerns toward the coming of a new plant which would compete with them for labor.
7. There must be available in the area service operations such as heat treating and plating.

The consulting engineers, Ford, Bacon and Davis, Inc., New York City, selected six states as a likely general area and asked plant site information from towns, state agencies, railroads, power companies, and Chambers of Commerce. These were the states and average hourly earn-

ings compared with the company's city officials, business people, manu-

Wants Frogs

Mr. Lewis Parley who operates a Sherman Power Digger for the Hood Construction Co. of Los Angeles, Calif. says, "I have been a backhoe operator for six years and in that time have run several different makes, but I have never run one as good as the "F" Sherman."

If You Excavate... What These Men Say About Sherman Diggers Is Important

When it comes right down to it, the men who own and operate power diggers day after day are the ones who really know how such units perform and how they stand up.

That's why the comments of these typical Sherman Power Digger operators are important to every excavator. They prove the Sherman saves you money for two reasons: First, the Sherman digs faster, completes jobs quicker. Second, the Sherman is so rugged and dependable that downtime is kept at a minimum.

Prove to yourself the Sherman is your best buy—"Clock it" on your own job—without obligation. At the same time, check the many exclusive features that *keep the Sherman out of the repair shop and "on the job."*

Write today for Bulletin No. 1076

Mr. E. L. Shaner handles an "F" Sherman Power Digger for contractor E. A. Irish at a new subdivision in Laguna Beach, Calif. He says, "I have run them all and I like the Sherman best. It is easier handling. For instance, if I am sitting on a bank, I can swing up-hill—something you can't do with some of the other rigs. They just won't do it. And the Sherman has a full 90 degree swing both ways."

Sherman Products

SHERMAN PRODUCTS, INC., Royal Oak, Michigan

POWER DIGGERS • LOADERS • FORK LIFTS

SOIL WORKING TOOLS • CRANES AND EXCAVATORS

In Seattle, Mr. Sam English, one of the owners of Excavators, Inc., reports a saving in money on a utility contract because the Sherman undercuts eight feet unbroken sections of pavement, thus eliminating expensive handwork. He says, "The maneuverability, efficiency and economy of the Sherman make it the best digger I have seen."

Mr. L. L. Donaghue and Mr. Vernon O. Lippoldt, co-owners of the D & L Ditching Service of Haysville, Kansas, say, "The Model "F" is our fifth Sherman digger and if we were going to buy a digger tomorrow, it would be one just like this one. We already have 275 hours on it and have yet to tighten a bolt."

ings compared with the company's headquarters at Port Chester, N. Y.:

	%
Port Chester, N. Y.	100
Kentucky	89
Tennessee	75
Virginia	73
Georgia	69
South Carolina	66
North Carolina	65

Three field investigation trips were made by the engineers and detailed reports were made on four municipalities and their environmental factors.

Other Cities Visited

In the ***Greenville, S. C.*** area ample labor is available and trainable, with wages ranging from the legal minimum for unskilled to $2.50 for specialized skill. The most favorable site was at ***Laurens, S. C.*** (population 47,000), 35 miles from Greenville. The city would donate the land to a new industry and extend gas and water services and construct an elevated water tank.

At ***Burnsville N. C.*** (population 2,000) a plant of 156,544 square feet built in 1951 was available for use. The main objection was isolation. The railroad is a branch line and Asheville airport service is not ideal.

Gastonia Is Investigated

Reports of accessibility, distribution and low labor costs led to a field investigation of ***Gastonia, N. C.*** (population 35,000), 20 miles west of Charlotte. Elevation is 800 feet and temperatures range from 78.4 in July to 41.2 in January. Labor costs are controlled by the prevailing low rates in the textile industry. There is no chain saw or comparable plant, and a company training program would be necessary. North Carolina has a right-to-work law.

In this area is the Greer site, 2 miles south of Gastonia, served by a hard-surfaced county road and U. S. Highway 321. The railroad would build a side track to the plant. The power company would provide a substation. The gas company would offer rates equivalent to the cost of No. 5 fuel oil. Water would be furnished through a 2½-mile, 10-inch pipe.

. . . and Selected

As a result of the engineers' findings the company's vice president of manufacturing, R. C. McDonald, visited Gastonia. He conferred with city officials, business people, manufacturing executives, and state officials regarding taxes and controls. The Gastonia site was selected because of low labor costs, suitable labor, accessibility by air, rail and truck, proximity to Charlotte, the availability of outside processing services, and the exceptionally favorable community attitude and good industrial climate. The plant has been operating six months with 200 to 300 workers, of whom only 12 are from company headquarters.

Wants Frogs

A MAYOR'S duties never end. . . .

The Louisiana Municipal Association reports that a 10-year-old boy in Alaska asked Shreveport's Mayor Gardner for some miniature frogs. He requested that they be sent to him by air mail in a box perforated with air holes. The Mayor said he would comply with the request if he finds any of the frogs.

However, Mayor Gardner has found none at this writing.

NIGHT & DAY

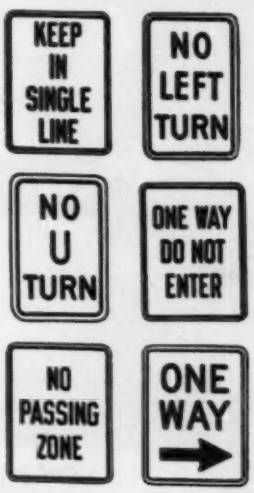
THOUSANDS OF TASSCO SIGNS . . . CLEAN . . . CLEAR . . . EASILY LEGIBLE . . . REGULATE AND GUIDE AMERICA'S MOTOR TRAFFIC TWENTY-FOUR HOURS A DAY, 365 DAYS A YEAR!

Nothing could be more economical than these well-made, extra long life signs . . . *the finest obtainable.*

TASSCO Signs are the result of the most modern manufacturing processes and expert engineering. Whether your need is for standard signs like these or for special signs made to specifications, be sure to consult TASSCO.

ALL ALUMINUM TASSCO SIGNS PROVIDE STRENGTH WITHOUT WEIGHT . . . MAXIMUM RESISTANCE TO WEATHER AND CORROSION . . . MINIMUM MAINTENANCE AND REPLACEMENT . . . AND GREATER LEGIBILITY FOR *MUCH* LONGER! That's *real* economy!

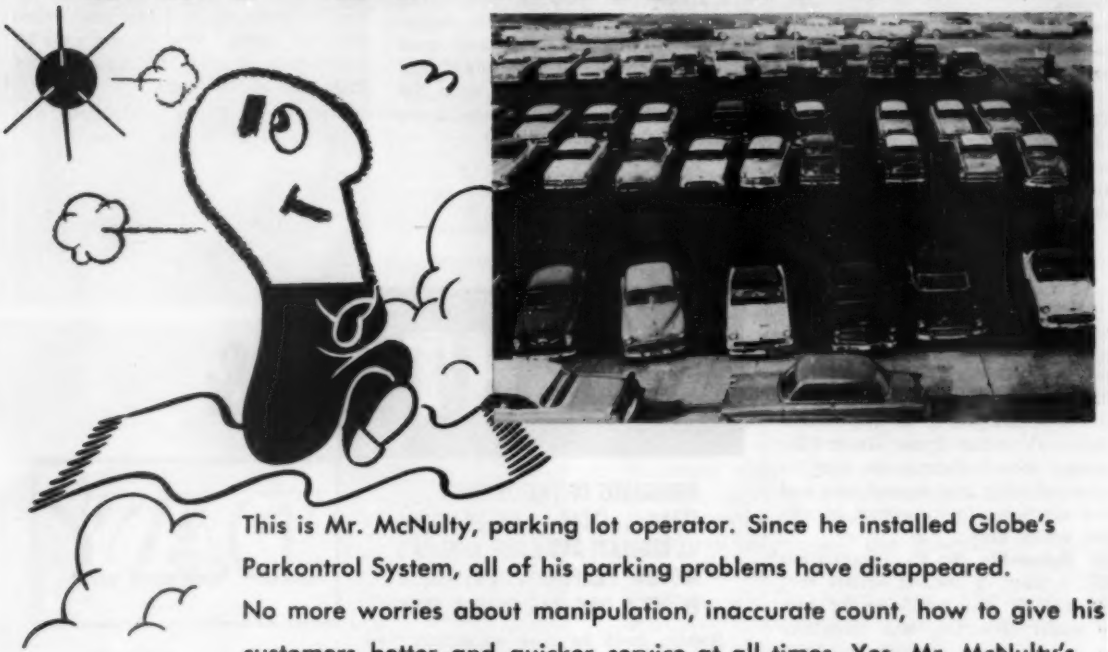
Traffic and Safety officials are invited to write for catalog.



The Sign of TASSCO Traffic Safety

TRAFFIC and STREET SIGN COMPANY
84 FOUNDRY STREET • NEWARK 5, N. J.

OUT OF THIS WORLD

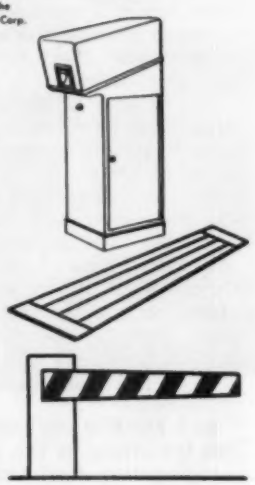


This is Mr. McNulty, parking lot operator. Since he installed Globe's Parkontrol System, all of his parking problems have disappeared. No more worries about manipulation, inaccurate count, how to give his customers better and quicker service at all times. Yes, Mr. McNulty's worries are over and he is enjoying the many other advantages that Parkontrol offers.

WITH THIS PARKING CHECK

and THIS EQUIPMENT

Automatiket
A Product of the General Register Corp.



. . . you, too, can start enjoying the security of a completely controlled parking operation. Parkontrol's flexibility and associated control equipment make it adaptable for both large and small (indoor and outdoor) parking operations. Investigate the possibilities that Parkontrol has to offer in respect to your present operation. You are invited to contact any of the offices listed below for further information.

GLOBE TICKET COMPANY

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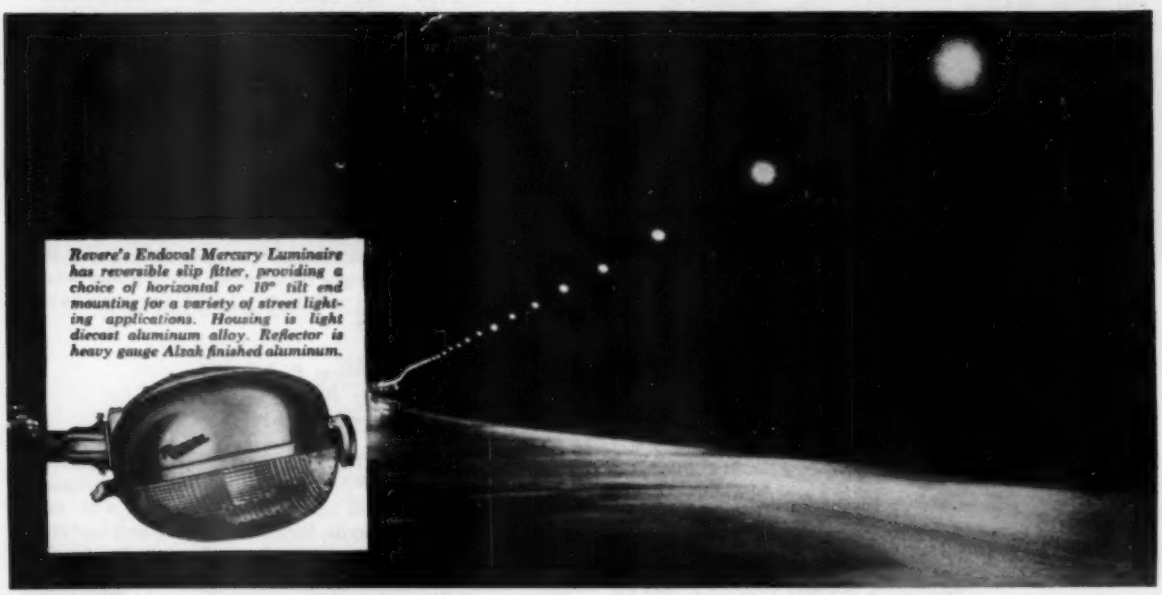
A Nation-Wide Service

Philadelphia 7, Pa. · Boston 15, Mass. · New York 11, N.Y. · Atlanta 10, Ga. · Dallas 35, Texas · Los Angeles 13, Calif. · Tacoma 4, Washington · Pittsburgh 19, Pa. · Richmond, Va. · Cincinnati 2, Ohio · Syracuse 3, N.Y. · Alexandria, Va. · Miami, Fla. · San Francisco 4, Calif. · Baltimore 2, Md. · Cleveland 14, Ohio · Detroit 2, Michigan · Buffalo 2, N.Y. · St. Louis 1, Mo. · Chicago 5, Ill. · Houston, Texas · Charlotte, N.C.

In Canada: Cameron Grant, Incorporated, 465 St. John St., Montreal, Quebec

This metropolitan street is provided uniform, glare-free illumination at night with Revere's Endoval Mercury Luminaires. Day-time photo of installation.

REVERE PLANNED STREET LIGHTING



Revere's Endoval Mercury Luminaire has reversible slip fitter, providing a choice of horizontal or 10° tilt end mounting for a variety of street lighting applications. Housing is light diecast aluminum alloy. Reflector is heavy gauge Alzak finished aluminum.

The best way to avoid "lag" between city growth and *adequate* street lighting expansion is to plan in advance. An integrated lighting program that is flexible enough to meet your city's expansion will save money — and will save tackling the problem anew with each step of your city's improvement projects.

If you would like help in planning new street lighting for your city, or in replacing obsolete lighting with modern, glare-free illumination—a letter or phone call will bring a Revere sales engineer your way.

Revere

Write for Catalog No. 700 covering Revere's complete line of street lighting equipment

Revere Electric Mfg. Co., 6009 Broadway, Chicago 40, Ill., UPtown 8-7100

Available in Canada thru Curtis Lighting, Ltd., Leaside, Toronto, Ontario

OUTDOOR LIGHTING: Industrial • Commercial • Service Stations • Streets • Sports • Airports • Shopping Centers

On Buying Prison-Made Goods

Are they unfair competition or should they be treated like other goods?

ROBERT E. DEVELLE, director, Department of Finance, City Hall, New Orleans, La. wrote to the National Institute of Governmental Purchasing: *The State Penitentiary solicited us for sales of janitorial supplies manufactured by them. As a result one of the dealers in this line of business complained to the Mayor that he thought this was unfair competition. The Mayor and Chief Administrative Officer have asked me to look into this matter and let them know the practice in other cities.*

The Institute obtained the following reports from leading public purchasing executives:

Joseph V. Spagna
Commissioner of Purchase
City of New York

Our policy has been to treat prison industries (State Department of Correction) in the same manner as any other bidder. To receive an order, bids must be according to specifications and the price must be the lowest submitted. We have another situation involving the Blind Industries. The state law mandates orders to this group for such items as may be listed in their catalogs. Orders are therefore issued to this group without competition. However, the fairness of the prices is subject to the approval of the State Board of Standards and Purchase in Albany. We find the prices conform very nearly to the general market.

C. E. Beatty
City Purchasing Agent
Charlotte, N. C.

The North Carolina State Penitentiary seems to be keyed to standard products which would be universally used throughout the state, and are not interested in altering their specifications to meet our local requirements. We have therefore been unable to cooperate with them in supplying these items for our city.

A. C. Shepherd
City Purchasing Agent
Winston-Salem, N. C.

About two years ago the North Carolina Bureau of Prisons made arrangements with the North Carolina League of Municipalities to handle their goods, items such as traffic paint, street signs, and printed forms for police department use. No pressure has been put on us to purchase these items. However, we find that their traffic paint is the best we can buy, since it is made for North Carolina highways and meets the specifications of the North Carolina State Highway Commission. We consider the prison-manufactured goods as just another source of supply.

R. W. Beede
City Purchasing Agent
Eau Claire, Wis.

We are allowed to purchase any materials or equipment made by the Wisconsin State Penitentiary and we do purchase paint, street signs, and office equipment. We have had a few objections by vendors but not anything very serious.

B. G. Kline
Purchaser of Supplies
City and County of San Francisco

San Francisco does not buy any prison-made articles. Section 117 of our Purchase Procedure Ordinance reads as follows: *Sec. 117. Supplies not to be prison-made. No article or articles furnished under any contract made under the provisions of Sections 103 to 124 (Purchase Procedure Ordinance), inclusive, of this article shall have been made in a prison or by convict labor.*

C. E. Wiberg
City Purchasing Agent
Birmingham, Ala.

Everything being equal, of course, it is desirable to acquire these items from your local suppliers. At the present time the only thing we buy from the State Penitentiary is a certain type of white coveralls and bed sheeting, both items being used in our City Jail. It is my opinion that some items of this nature may be in order but there is such a thing as going overboard in lending a hand to a socialistic state of government. Under normal conditions private industry, with its tax rates and certain forms of competition from the government, is having a hard row to hoe—and I think it is always well to keep this situation in mind.

Ivan L. Swanson
City Purchasing Agent
Omaha, Nebr.

I am enclosing a copy of 83-145 State Institutions, Revised Statutes 1943, State of Nebraska, which governs use of prison-made goods. For your information, the State Reformatory of Nebraska manufactures metal signs of all kinds used by counties, cities, and the state and I have at various times bought a considerable quantity of their products on low bid in competition with private suppliers. However, they, like all others, have raised prices, so that even with convict labor, they have not been competitive and business therefore has been going to private concerns.

J. M. Pierce
City Purchasing Agent
Wichita, Kans.

We have never been asked to purchase products manufactured in the penitentiary. I would be interested in knowing what you will finally do, simply because we never know when we will be faced with the same problem.

William F. Johnson
City Buyer
Louisville, Ky.

This office, too, has been solicited by our State Penitentiary organization and after I consulted with our mayor, Bruce Hoblitzell, and our city consultant, R. H. Owsley, it was determined that our policy would be that we would not seek to do business with the penitentiaries during this period of plentiful supply and labor. It has also been determined that we may change this policy in times when materials are difficult to obtain and when labor is short in supply. However, we never feel that we should penalize our whole taxpaying body in order to favor at higher cost any one taxpayer or any particular group of taxpayers.

Want clean streets?
You can afford it

RENT A WAYNE

Rent out of operating funds...No investment required! Now, every community can have a modern, efficient, street sanitation program. Small towns as well as large cities. Do away with costly, inefficient hand sweeping. No need for special appropriated funds. *Labor savings cover all rental costs.* Send coupon for "Question and Answer" folder giving full facts about Wayne's exclusive Rental Plan.

Here are a few Cities enjoying a Modern Street Sanitation Program without capital investment:

CITY	STATE	POPULATION	CITY	STATE	POPULATION
Roanoke	Alabama	5,392	Roseburg	Oregon	8,390
Winslow	Arizona	6,518	Oconto	Wisconsin	26,238
Oroville	California	5,387	Greenville	North Carolina	16,724
Springfield	Illinois	81,628	Richardson	Texas	1,289
Oxford	Michigan	2,400	Logan	Utah	13,000
Springfield	Missouri	70,650	Glen Dale	West Virginia	1,467

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World's Largest Producer of Power Sweepers for Cities and Industry. Sold and Serviced in all principal cities.

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1432 E. Lexington Ave., Pomona, California

Please send me full facts on your new Street Sweeper Rental Plan.

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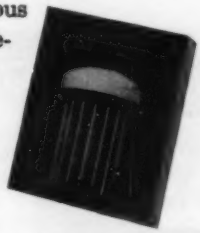
MODERN WATER STORAGE at Pueblo, Colorado

750,000 gallon tank on 120 ft tower.
Diameter 62 ft. Head range 35 ft.

by
Pittsburgh-Des Moines

These fine-appearing PDM Radial Cone Elevated Steel Tanks serving the city of Pueblo typify the value, craftsmanship and dependability inherent in Pittsburgh-Des Moines water storage units of every type. Full information on the various designs, with tables of capacities and numerous photographs, are presented in our 20-page Elevated Tank Brochure. Write for your copy.



1,500,000 gallon capacity tank on 70 ft tower. Diameter 88 ft. Head range 35 ft.

PDM
ELEVATED STEEL TANKS

Pittsburgh-Des Moines Steel Company

Plants at PITTSBURGH, DES MOINES, SANTA CLARA, FRESNO, and CADIZ, SPAIN

Sales Offices at:

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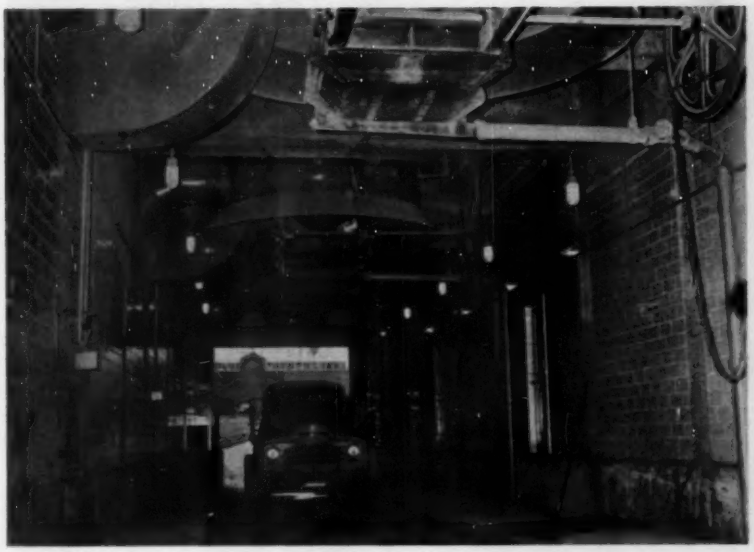
DES MOINES (8).....913 Tuttle Street
DALLAS (1).....1217 Praetorian Bldg.
SEATTLE (1).....Suite 320, 500 Wall St.
SANTA CLARA, CAL.....619 Alviso Road
DENVER (2).....323 Railway Exchange Bldg.

washing stall. The trucks park

We Incinerate Our Refuse Now

Indianapolis winds up an 11-year modernization program covering both refuse collection and disposal operations

By DWIGHT O. BENDER
Superintendent
Sewage Treatment Plant
Indianapolis, Ind.



Residue including ashes and incombustible materials is dropped into the hoppers and discharged into trucks for final disposal. Ash hopper doors are manually operated.

SOME 11 years ago the Department of Sanitation of our city undertook a long-range modernization program designed to transform an antiquated refuse collection and disposal system into a modern, efficient operation. Economic conditions dictated a step-by-step procedure dealing first with collection operations, then temporary changes in methods of disposal, and finally a permanent method of disposal.

An article, published in the November 1955 issue of THE AMERICAN CITY, described the numerous improvements made in the area of collection and also the temporary changes covering disposal ("Modern Sanitation in the Homestretch," p. 119). This article covers the latest stage in the over-all program and describes the incinerator placed into service early this year.

Why Incineration?

For more than a half-century Indianapolis disposed of garbage and rubbish in dumps located throughout the city. In recent years garbage was hauled to the sewage treatment plant, ground and pumped to the sewage lagoons. Prior to 1952 the city also operated a garbage reduction plant. Refuse was still hauled to six dumps for disposal by the sanitary landfill method.

The difficulty in locating sanitary landfill sites plus increasing loads on the sewage treatment plant forced the city to look for other methods of disposal, and incineration provided the best answer.

The incinerator, located at the sewage treatment plant site, is of the

Two boilers, one oil-fired (shown in above view) and the other using waste heat from the incinerator, generate steam for use throughout the Indianapolis Sewage Treatment Plant.

Construction of this incinerator at the City of Indianapolis completes an 11-year modernization program that affected every phase of its refuse collection and disposal operations.

Workmen check the mechanisms of one of the furnaces during early test operations. The incinerator contains three furnaces. Each can dispose of 150 tons every 24 hours.

bin-and-crane type. It contains three Nichols Monohearth units, each rated at 150 tons per 24 hours. All units have an inside diameter of 14 feet and are fire-brick lined. Design of grate area is based on a burning capacity of 80 pounds per square foot per hour, and that of the combustion chamber to provide from 15 to 20 cubic feet of air per ton of capacity. The single expansion chamber with varying cross sections is designed to keep gas velocities under 10 feet per second. Space has been provided for a fourth unit.

Trucks entering the plant first weigh their load by means of a Toledo "Printweigh" scale and then discharge the refuse into the storage bin. The bin has four dumping bays and is 105 feet long, 24.3 feet wide, and 26 feet deep in measurements.

A single Whiting 4-ton crane with 3-cubic-yard bucket transfers refuse from the bin to the charging hoppers located above each furnace. Ashes and incombustible materials drop to the ash-receiving hoppers, are water-quenched and then discharged into trucks. The trucks can drive directly under the hoppers.

Auxiliary Equipment

Auxiliary equipment includes Minneapolis-Honeywell control instruments, Westinghouse Sturtevant Industrial Fans for furnace draft, and Beaumont Birch manually-operated ash-discharge gates.

A room adjacent to the far end of the storage bin serves as a truck washing stall. The trucks park over a grating covered hopper that receives the wash water and debris washed from the truck body. The water goes to waste and the solid material is conveyed to the storage bin.

The three furnaces are connected to a single stack, fire-brick lined, 195 feet high and 13 feet 2 inches inside diameter. A Nichols Wetscrub fly-ash removal system, designed to comply with the Indianapolis Air Pollution Code, patterned after the ASTM code, assures dust-free and ash-free stack gases.

Waste Heat Recovery

The incinerator building also contains two Erie City steam-generating boilers, one an oil-fired unit moved from an adjacent building and the other a new unit utilizing waste heat from the incinerator. Steam generated by these units is used throughout the sewage treatment plant.

The oil-fired boiler, rated at 184 hp, has a furnace volume of 483 cubic feet, a working pressure of 160 psi and an operating pressure of 125 psi. The 502 hp waste-heat boiler has a heating surface of 4,562 square feet and a rating of 14,000 pounds of steam per hour. It has the same working and operating pressures as the smaller unit.

A Hoff-Mar vacuum sweeping system, with outlets located throughout the building, aids in keeping the building and equipment clean.

Future Plans

Although final working schedules have not been completed, it is estimated that 30 men, including the superintendent, will be required to operate the plant on a 24-hour, seven-day basis. After completion of test operations, the plant will be turned over to the Collection Division. The writer, a registered engineer who has been with the Sanitary District for 29 years will then concentrate his efforts upon starting the newly completed sludge filtration and incineration equipment.

Moore & Heger, Consulting Engineers of Indianapolis, designed the plant, and C. M. Geupel of Indianapolis held the general contract for the structure. G. C. Shubert served as resident engineer. It was constructed at a total cost of approximately $1,403,500 and financed by a general obligation bond.

Refuse collection and disposal operations are conducted under the Board of Sanitation. James C. Courtney is president of the board.

An overhead crane with a 3-yard bucket transfers refuse. Here it swoops down to pick up refuse from the storage bin and will deposit it in the furnace charging hoppers.

For more facts, turn page

(1) "Holidays" in any coat of M50 pigment systems (2) With M50 pigment Defense in Depth paints, thin

Never before such durable metal protection

Proof M50 pigment Defense in Depth paints deliver up to 300% greater content of rust-inhibitive ingredient

Exposure tests make it plain! Paints containing M50* basic lead silico chromate pigment do more to prevent rust. Look at the panels above. These primers were applied (2.0 mils, dry) over rust and mill scale (to intensify severity of the tests), then exposed 12 months at Perth Amboy, N. J. in an industrial atmosphere and 12 months at Sayville, L. I. in a normal atmosphere at 45° South. Clearly, the rust arresting action of M50 pigment is significant.

Research analysis of tests like this prove an *M50* pigment Defense in Depth paint provides substantially more rust-inhibitive action than comparable paints made with conventional pigments. You can see one reason for this. The configuration of the *M50* pigment particle provides a more efficient way to take advantage of the well-known rust-inhibitive properties of the active ingredients (fused lead chromate).

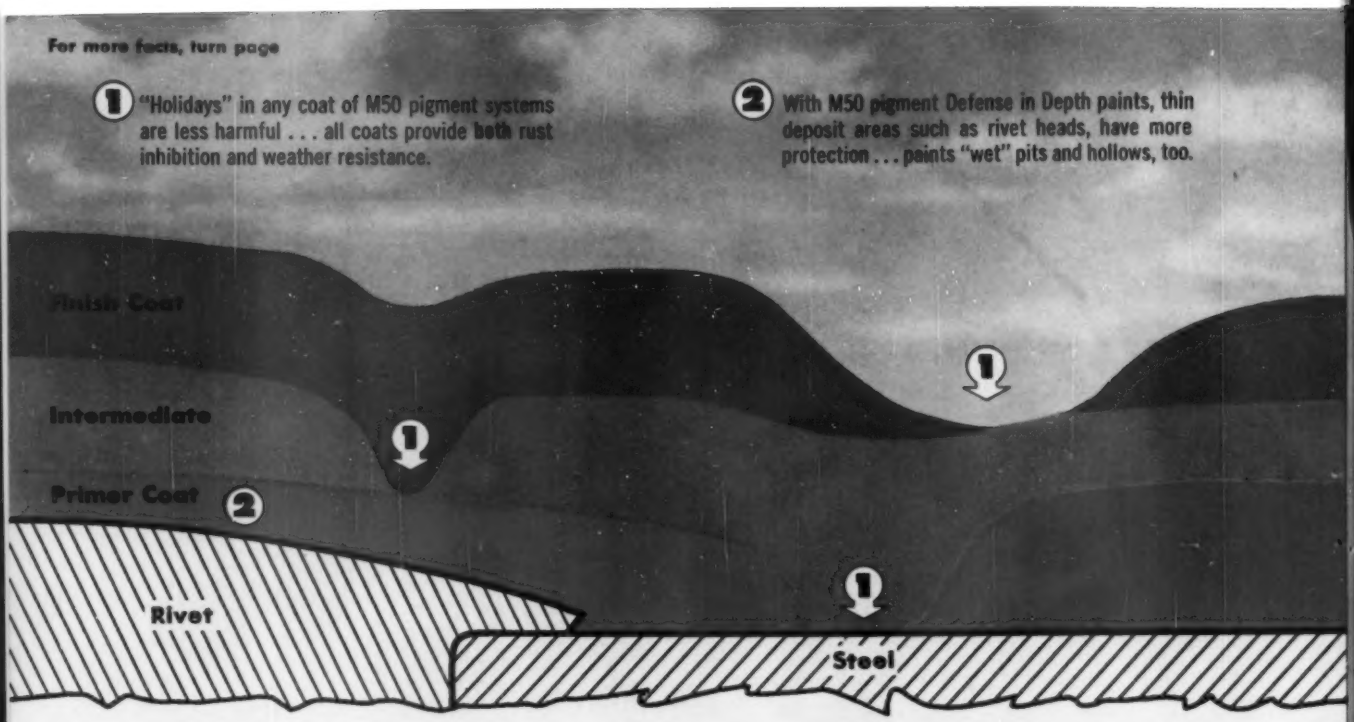
Second reason for the improved anti-corrosive action of *M50* Defense in Depth paint systems is the versatility of the *M50* pigment. Unlike other rust inhibitors, the inert-core particle is technically desirable and economically practical for use in intermediates and finishes . . . not just in primers alone. *Each* coat in an *M50* pigment system can be given substantial rust-inhibitive properties in its own right. Hence total rust-inhibitive pigment content of some *M50* pigment systems exceeds the rust-inhibitive content of comparable non-*M50* pigment systems by as much as 300%.

See on the next page other ways *M50* pigment Defense in Depth paints step up metal protection. See also how National Lead is prepared to help you get these superior specification products from your regular paint suppliers.

*Registered trademark of **National Lead Company**

General Offices: 111 Broadway, New York 6, N.Y.

For more facts, turn page


1 "Holidays" in any coat of M50 pigment systems are less harmful . . . all coats provide both rust inhibition and weather resistance.
2 With M50 pigment Defense in Depth paints, thin deposit areas such as rivet heads, have more protection . . . paints "wet" pits and hollows, too.
Finish Coat
Intermediate
Primer Coat
Rivet
Steel
1
2

Schematic section through 3-coat M50 pigment Defense in Depth system shows new paints provide two performance extras

Information on the preceding page proves that *M50** pigment Defense in Depth paints deliver inherent rust inhibition well beyond that available in other anti-corrosive paint systems.

Diagram above shows two additional performance extras. Because *M50* pigment coats give more protection over thin deposit areas . . . because breaks in *M50* pigment coats traceable to damage or painting mishaps are less harmful . . . the need for on-the-job spot priming and touch-up is greatly reduced. Then, too, *M50* pigment primer coats are not only rust inhibitive but also weather resistant. Re-priming is rarely needed.

Other advantages of *M50* pigment paints include a broad choice of colors in all coats, with excellent tint retention.

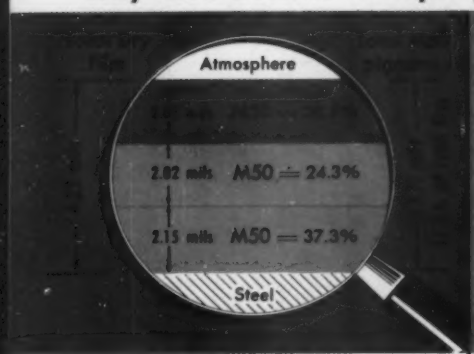
Are you responsible for steel structure maintenance?

If so, you are invited to examine exposure tests of *M50* pigment paints at National Lead's Sayville, L. I. test station. National Lead will also:—(1) send you a 24-page descriptive brochure, "Defense in Depth." (Mail coupon below); (2) provide technical aid in test applications; (3) help you develop suitable specifications for paints containing *M50* pigment.

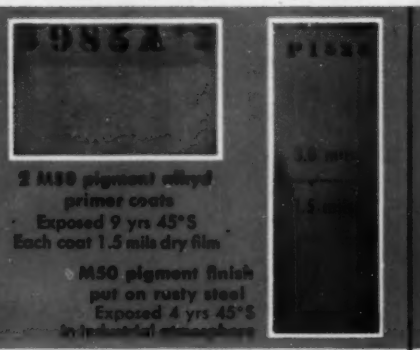
For M50 pigment paints themselves, contact your regular suppliers.

*National Lead Company trademark for a basic lead silico chromate pigment

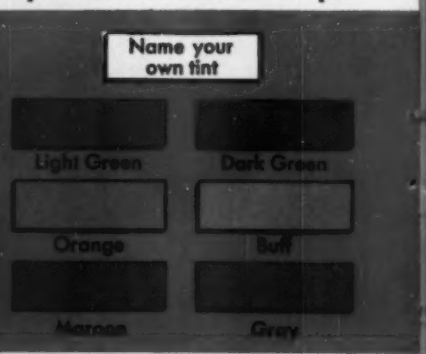
Why M50 Defense in Depth paints give you metal protection beyond all former concepts



In every coat...rust inhibition! Fused lead chromate is noted for rust-inhibition. The *M50* pigment particle structure permits paint makers to include large proportions of lead chromate in all coats of anti-corrosive systems.


2 M50 pigment alkyd primer coats
Exposed 9 yrs 45°S
Each coat 1.5 mils dry film
M50 pigment finish put on rusty steel
Exposed 4 yrs 45°S

In every coat . . . weather resistance! *M50* pigment is insoluble in water and has the excellent tint retention properties of fused lead chromate. Unlike other rust inhibitors, it actually boosts weather resistance of paints.



In every coat...your choice of colors! *M50* pigment gets along well with most tinting pigments, permits paint makers a wide range of colors...not only in intermediates and finishes but in primer coats as well. Colors stay true.

M50 Defense in Depth

National Lead Company,
111 Broadway, New York 6, N. Y.

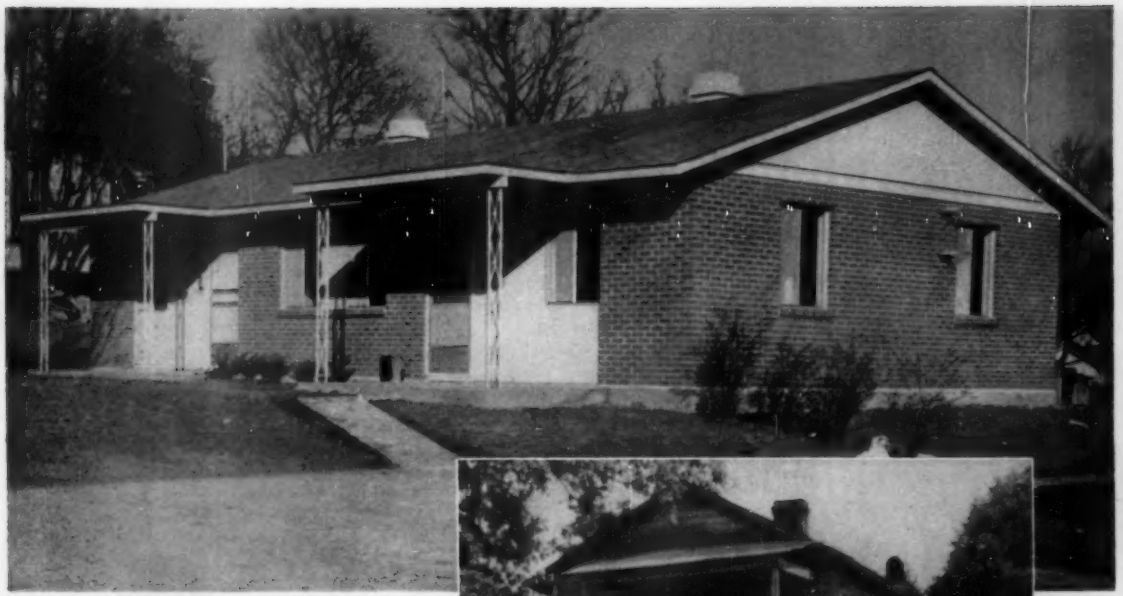
Gentlemen: Please send me your 24-page brochure, "Defense in Depth." Include color card of the six *M50* pigment paints you recommend for steel highway structures.

Name_____ Title_____

Firm or Dept._____

Address_____

City_____ State_____



Cedartown's public housing program is building neat homes like this . . .

. . . in place of blighted shacks like this.

Homelike Public Housing

Cedartown, Ga. makes a drastic departure from past public housing practices by building small homes on scattered sites to blend with and upgrade existing neighborhoods

By CHARLES E. SLUSSER
Commissioner
Public Housing Administration
Washington, D. C.

IN Cedartown, Ga. a new idea in public housing is getting an opportunity to prove itself. Instead of more "projects", this city's housing authority is erecting single-family and duplex houses that maintain and upgrade the residential atmosphere of the neighborhood, thereby completely eliminating any institutional character from the project.

The number of units involved here is small—at present 20—but appropriate for a city of 10,000. Moreover, they are scattered over the entire town. No more than four units have been placed at any one location, and at some sites there is only one. The houses look like homes, and have a good chance of becoming privately-owned.

The homes are neat, brick veneer, built on concrete slabs, with asphalt shingles and plywood sheathing. Their cost was less than $10,000 per unit, and include gas range, refrigerator, steel kitchen cabinets, sidewalks, drives, utilities, lawns, and shrubbery.

The homes were built as an experiment under a negotiated contract with National Homes, Inc., of Lafayette, Ind. They were built to designs drawn by Cooper, Barrett, Skinner, Woodbury & Cooper, architects retained by the Cedartown Housing Authority. Their design uses a basic 4-foot module with studs spaced 16 inches on centers, and roof trusses that are 2 feet on centers. Wall panels in 4-foot increments, 8 feet high, could be prefabricated up to 16 feet in length. Roof trusses could be factory- or field-assembled, spanning the full width of the buildings, thus permitting all partitions to be nonload-bearing. "Dry wall" construction permitted in this work allowed National Homes to furnish wall panels having interior gypsum board covering and exterior insulating fibre board sheathing, applied in the factory, complete with

First transistor-powered mobile radios thermostatically protected

General Electric's Progress Line mobile radios now offer transistor advantages in all bands.

New transistorized power supply for both transmitters and receivers means no vibrators to replace, no rotating or vibrating parts to wear out. Transistors, plus high quality silicon rectifiers, give you the most dependable mobile communication known today.

Progress Line mobile radios with transistorized power supplies are available in *all* communication bands: 30 to 100 watts in low band (25-54 mc), 25 or 50 watts in high band (144-174 mc), or 15 watts in UHF band (450-470 mc).

OPERATE FROM EITHER BATTERY POLARITY—Only General Electric's Progress Line lets you operate on either positively or negatively grounded 12 volt batteries. This is especially important in fleet operations.

IMPROVED RANGE—Vibrator hash usually associated with receivers is totally eliminated by the use of transistors. The result is maximum receiver sensitivity.

NOT DAMAGED BY VOLTAGE VARIATIONS—Unlike vibrators, transistorized power supplies can withstand battery voltage variations from +20 to −50 percent.

PROGRESS WITHOUT OBSOLESCENCE—No need to buy new power cable or control head. General Electric Progress Line mobile units with either new transistorized power supply or regular vibrator power supply are *completely interchangeable.*

Call your G-E communications consultant for full details. He's listed under "Radio Communication Equipment" in the Yellow Pages. Or write General Electric Company, Communication Products Department, Section 148 Syracuse, N. Y.

Progress Is Our Most Important Product

GENERAL ELECTRIC

electric wiring. Windows and doors also were installed at the factory in the wall panels. Even the rough plumbing for water supply and wastes lines were all prefabricated.

The interior finish is a mottle-type spray paint, selected to minimize the final corrective patching. Exterior painting was hand-applied. However, exterior trim members were pre-cut and factory-primed.

This type of public housing contrasts with the sledge-hammer blows that the big housing projects have aimed at slums in the past. The wholesale clearing of huge tracts meets the slum menace head on. However, it cannot be used to counteract the blight to a neighborhood that a single home or two or three homes create. This type of blight is a forerunner of slum.

The Cedartown experiment puts the tenants back in the community, not apart from it. The tenants will have both back and front yards, complete with garden plots. They will live on existing streets, use existing water, sewer and power lines.

The possibility also exists, as mentioned previously, of eventual resale to occupying tenants. This should appeal to the homebuilders who construct the unit; to the real estate interests which would see more property in the real estate market; and to the city itself, which would receive an increased return for its tax rolls. This would be the second increase. The first would occur when the blighted, low-return property was replaced by an up-to-date unit.

Moreover the tenants in the houses themselves would have one of their more heartbreaking problems solved. Under public housing regulations today when tenants exceed specified income limits, they must leave the housing, but without the assurance of decent housing to move to. Frequently they must return to the slums from which in all probability they came. They are making too much money to remain in public housing, but not enough to acquire a decent home. Now, the challenging possibility remains that they will be given the opportunity of purchasing the house and making it a permanent home.

Cedartown plans an additional 30 units to be constructed along this same pattern in the future. The housing authority has 154 additional low-rent public housing units in operation. The Cedartown Housing Authority consists of B. H. Grant, chairman; Lee Parker; J. M. Cobb; Roy Emmet; and Henry A. Stewart. M. I. Frost is executive director.

Bankers Discuss Urban Renewal

AT A PANEL discussion held in Chicago recently Walker Mason, Deputy Administrator of Housing and Home Finance Agency developed some timely topics for the Midwestern Conference of Mortgage Bankers Association of America.

He discussed the downtown areas' struggle against the competition of the so-called out-of-town areas; private capital and private enterprise acting for the public good in the field of urban renewal; and the rise of Federal Housing Administration applications in the field of housing today.

FHA Mortgage

Mr. Mason also discussed the average FHA mortgage under Section 203 in the region of $12,000. He said the incomes of more than one-half of the mortgagors — or 60% — is less than $7,000, while 41% of them have incomes of less than $6,000. Twenty per cent have incomes of less than $5,000.

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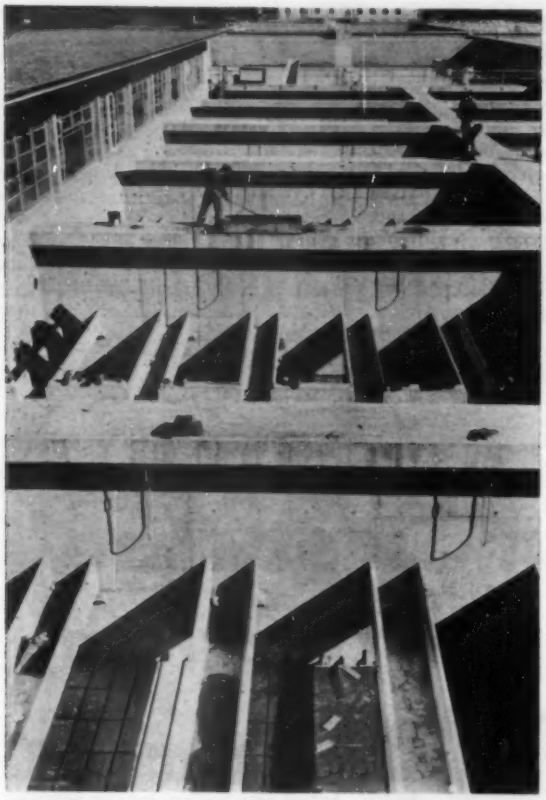


Providing the 12 filters of the north gallery increased total rated capacity of the Elm Fork Plant from 50 to 100 mgd.

Filter bottoms are clay tile blocks on a cement grout covered with 12 inches of graded gravel and 24 inches of graded sand.

Dallas Doubles Filtration Capacity

Plans are now being made for new feeder main to carry additional water required by 1962

By R. E. MORRIS, JR.
Assistant Superintendent

and

L. W. CUMBER
Mechanical & Electrical Engineer
Dallas City Water Works
Dallas, Texas

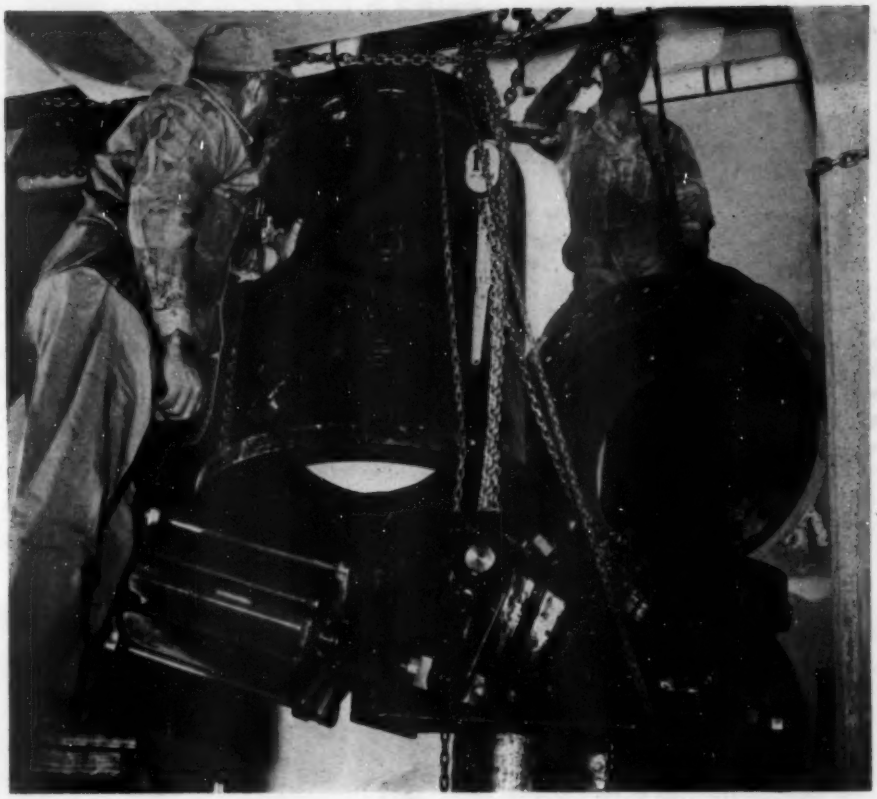
THE Elm Fork Water Treatment Plant, constructed in 1951 and 1952 at Dallas, Texas, consisted of 12 rapid sand filters with provisions for the addition of 12 more filters at some future date. Each filter had a rated capacity of 4.0 mgd at 2.0 gallons per square foot per minute, with a total plant capacity of 50 mgd. Piping was designed for an 8.0 mgd unit rate with a maximum total capacity of 100 mgd. The plant was built with two galleries, north and south, each serving 12 filters. Only the south gallery and its filters were equipped during the original construction.

This spring, E. W. Bacharah, Inc., of Kansas City, Mo. is completing its contract to equip the 12 filters in the north gallery. The addition will increase total plant capacity to 100 mgd at 2.0 gallons per square foot per minute with an ultimate hydraulic capacity of 200 mgd at a rate of 4.0 gallons per square foot per minute.

The present contract, costing approximately $471,058, includes an underdrain system and filter media; surface wash equipment; valves and piping; a controller; operating table; a central panel; actuating equipment, and pneumatic control and instrumentation.

The filter underdrain is a Leopold modified clay-tile bottom, laid on a cement grout for uniform grading. Each filter has 1,390 square feet of area. Filter media consists of 12 inches of gravel, size 1 inch to #14 mesh, and 24 inches of sand, size 0.45 to 0.60 mm. Six 14-foot self-propelled Palmer revolving sweeps make up the surface wash system for each filter.

Valves, all meeting AWWA specifications, are hydraulically operated



Workmen install a 30" x 20" x 30" influent and wash water tee on top of a 30-inch, class 25-16 butterfly valve.

# of Water Treatment Plant

and controlled from the filter tables. Valve size and type is as follows:

Influent—	20" gate
Wash—	30", class 50-16 butterfly
Waste—	30", class 25-16 butterfly
Surface Wash—	6", square bottom gate
Effluent—	16", class 25-16 butterfly, control regulating valve

Effluent regulating valve operation is provided from the operating table for backwashing and for manual rate control in emergencies such as the loss of air.

Piping and conduit consists of:

Influent—	4.6' x 8.9' concrete flume
Effluent—	3.0' x 11.8' concrete flume
Wash Water—	42" steel pipe header
Waste Water—	36" steel pipe

Rate of flow controllers are Builders-Providence Model RCB-T, 20-inch line size with venturi section and 16-inch butterfly regulating valve. Design of the regulating valve provides for both effluent control and effluent shut-off service. The valve is hydraulically powered and pneumatically positioned.

Operating Equipment

Each filter has its own marble operating table serving as the control center for filter influent, effluent, backwash, surface wash and waste valves. Rate of flow and loss of head gauges on each filter operating table parellel similar gauges on the central panel.

The central panel, located near the center of operations for the existing filters provides both manual and master rate control for the 12 new filters. Thus, the new panel together with the existing gauge panel provides an instrumentation and control center for the entire operation of the filter.

The new panel, furnished by Minneapolis-Honeywell, is entirely pneumatic and contains the following instruments of their manufacture:

- 12 loss of head Tel-O-set indicators
- 12 rate of flow Tel-O-set indicator-controllers with cascade control
- 1 loss of head 12-record Electronik strip chart Multipoint recorder
- 1 rate of flow 12-record Electronik strip chart Multipoint recorder
- 1 manual-automatic dual Tel-O-set master indicator-controller.

Converters and Positioner

Actuating equipment located at the filter effluent piping consists of M-H rate of flow and loss-of-head differential converters and an A. W. Cash

Company pneumatic-hydraulic positioner.

Control and instrumentation is such that:

1. All or any selected number of the 24 filters will operate automatically in accordance with the plant load, i.e., the water level of the outside collection flume.
2. All or any selected number of the 12 new filters will operate individually at the rate set manually at the central panel controller.
3. All or any selected number of the 12 existing filters will operate individually at the rate set manually at the operating table.

Actual pumping equipment, supply lines and settling basins are not available to utilize the plant's full filtration capacity. Thus, this contract seemingly appears to put the cart before the horse. Such is not the case, for completion of the additional filters allows greater flexibility and will allow operation at the normal rated capacity in lieu of overloading filters during peak demand.

Main Feeder

A main feeder line, 66 inches in diameter, carries treated water from the plant to the distribution system. This line has a capacity of about 91 mgd. From a recent analysis of the distribution system made by Forrest & Cotton, Consulting Engineers of Dallas, it is predicted that by the summer of 1962 an additional 18.2 mgd will be required over and above the 91 million gallons daily now leaving the plant.

We have already awarded an engineering contract for the design of a 54-inch main from the Elm Fork Treatment Plant with a reservoir and pump station at its terminal end to discharge into a high-level area of the distribution system. This work will have to be placed under contract in time for completion prior to the summer of 1962. With this line in place and additional pumps installed, we estimate that this plant with present settling capacity can produce a maximum of 150 mgd. This will adequately handle demand for some time.

Cutting Excavation Costs

RIVER ROUGE, Mich. has cut in half its annual excavation costs by using an International Harvester 350 Utility tractor equipped with a Wain Roy backhoe and dozer. Department of Public Works officials in River Rouge are enthusiastic about this tractor because it not only excavates, but after repairs are made, it uses the dozer on its front to backfill and finish the job.

Superintendent A. Greig, Jr., finds that the 190 degree swing of the boom is a big help when digging in close quarters. Recently, on a water emergency repair job, the tractor excavated to a depth of 5 feet, and then after repairs were made, completed backfill. Total time elapsed—less than 3½ hours.

A tractor-backhoe-bulldozer proves to be a real handyman in River Rouge.

A Less Costly Park Building

BY INCORPORATING an insulating material in the wall design of a new fieldhouse, the Chicago Park District has been able to save on yearly heating costs. Fieldhouses have been built with straight masonry walls, the thickness depending on whether the roof structure was wall bearing or supported on steel columns. In the new $500,000 Lawndale Park Fieldhouse a corewall technique was used, the core consisting of 2-inch thickness of Foamglas insulation, a product of Pittsburgh Corning Corporation.

The outer course of all exterior walls is 4-inch face brick. The ultimate compressive strength of the rigid cellular glass insulation (over 7 tons per square foot) allowed it to be erected free-standing, leaving a ¼-inch dead air space between it and the outer course. The inner course of either brick or glazed tile was then applied.

The exterior of the new Lawndale Park fieldhouse of Chicago Park District.

The cellular glass insulation core, being impervious to water and vapor, will not be affected by any moisture draining across it.

In terms of dollars and cents, the building cost $.99½ per cubic foot.

The roof decking of the building was of precast concrete, insulated with two inches of Foamglas. The U-factor of insulation of the brick-cellular glass-glazed tile wall is .12, contrasted with .46 of previous walls. This, with the 2-inch roof insulation, will lower heating costs.

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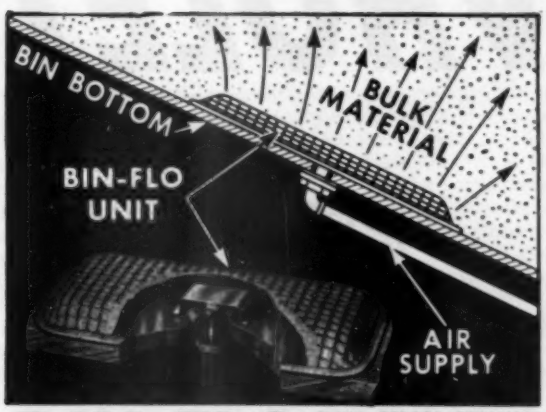

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A COLE elevated tank can solve your municipality's water supply and distribution problem. Take advantage of our 103 years specialized knowledge and experience. Capacities from 5,000 to 2,000,000 gallons. Write for *Tank Talks.*

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Here's the new sweetheart of the Task-Force fleet, Chevrolet's new Fleetside pickup! No truck has ever been better to look at . . . or better for your business.

Long, sweeping lines, graceful body contours . . . *new* truck appearance that's fleet, dashing and completely modern! Yet there's even more to the new Chevrolet Fleetside than the striking beauty that first meets your eye. There's *size*, for instance: extra room inside to pack many additional cubic feet of payload. And with double-walled lower side panels, durable hardwood floor, and solidly constructed full-width tailgate, the new Fleetside is the toughest of pickup bodies, too! A new adjustable latch keeps graintight tailgate free from rattles.

Here's a new high in hard-working utility, matched by new styling that makes you stand out on any street. See the new Fleetside at your Chevrolet dealer's now! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

More load space than any other comparable low-priced pickup. In lengths of either 78 inches or 98* inches and a full six feet in width, this new body actually provides 50% more cubic capacity than the conventional pickup box! **Optional at extra cost.*

Plenty of work-whipping hustle and muscle. Your choice of two great engines—standard 145-h.p. Thriftmaster 6 or optional at extra cost 160-h.p. Trademaster V8. And truck-engineered chassis components will take all the abuse your most bruising hauls can give them!

CHEVROLET **CHEVROLET TASK·FORCE TRUCKS**

"With records like these . . .

Whirlybird Mosquito Spraying

St. Louis Park, Minn., finds that the helicopter provides extra accessibility in insect control work

By TOM CHENOWETH
City Manager
St. Louis Park, Minn.

PHOTO COURTESY OF *Minneapolis Star Tribune*

A whirlybird hovers over a peat bog, applying larvicide to an area that truck-mounted sprayers find inaccessible.

MINNESOTA is internationally known as the land of 10,000 lakes. It also has its folklore about mosquito pests. One often-told story goes to the effect that the legendary lumberjack, Paul Bunyan, imported swarms of wasps to kill the mosquitoes; however, they interbred and developed stingers on both ends. The story may be funny to one who never has heard it, but mosquito pests are definitely not funny to residents of an alert municipality like St. Louis Park, nor to its city government that maintains a policy of being responsive to the public's wishes.

St. Louis Park

St. Louis Park is one of the oldest and largest of the suburbs in the Twin Cities metropolitan area. Incorporated in 1886, it now has a population of nearly 40,000 and an area of 6,000 acres. Although primarily residential, it has a growing and well-balanced amount of industry. The city adopted the council-manager plan in 1954. Like much of Minnesota, the city has large areas of swampy lowlands which breed swarms of mosquitoes. There is no area-wide control program, and in the summer of 1956 it appeared that in the battle between the public and the mosquitoes, the bugs were the winners. Citizens, especially the ladies, harassed the City Council, asking that some control be attempted.

Funds Authorized

The Council authorized the expenditure of $6,850 for two sprayings by truck-mounted Hardiemist blowers owned by a private contractor. These met with varying degrees of success. Weather was a factor in that rain interfered several times.

The greatest problem was inaccessibility of some areas. The truck-mounted units gave a good account of themselves in older portions of the city platted to the gridiron pattern, with alleys. However, newer subdivisions platted to contours and without alleys made it difficult to reach back yards. Another disadvantage was the late start. The first spraying did not begin until the latter part of July when the mosquitoes had been biting and breeding for some time.

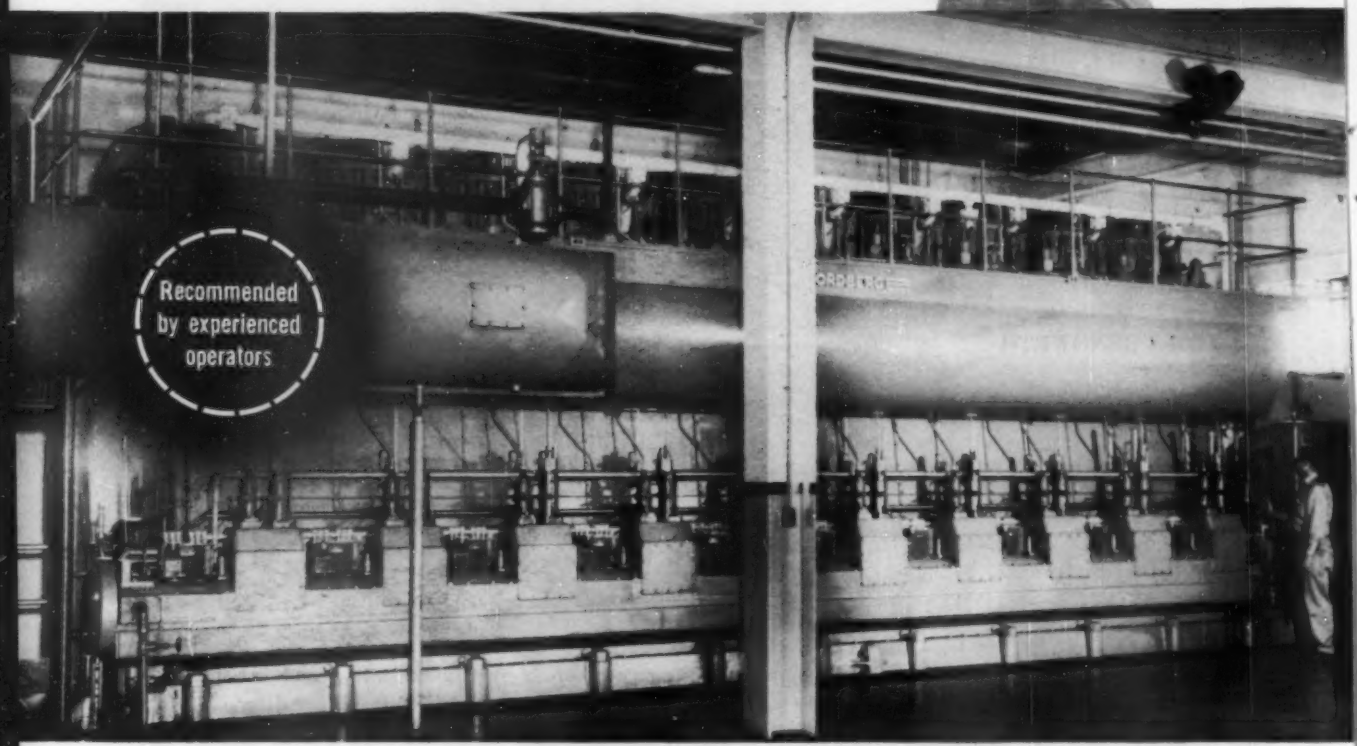
Next year the Council was determined to start earlier and do the job more thoroughly. After consulting with the office of the State Entomologist, and after receiving proposals from several firms, the city signed a contract with Heliflights, Inc., of Minneapolis, and the H & M Spray Service, St. Louis Park. These contracts called for two larval-control sprays of the breeding areas and for three adult-control sprays of the entire city by Bell Aircraft helicopter and truck-mounted Hardiemist blower. Each larval spray cost $1,925; each adult spray, $3,600; total price, $14,650.

First Larval Spray

The first larval-control spray, completed on May 12, applied a DDT-oil mixture by helicopter to approximately 700 acres of breeding area. The mixture consisted of one quart of 25% DDT emulsion to 7.75 gallons of fuel oil per acre. Inasmuch as the larval spray covered uninhabited lowlands, the oil solution produced

"With records like these . . . Sidney is well pleased with its NORDBERG ENGINES"

• • • says Mr. Armour Boese, Superintendent Municipal Power Plant, City of Sidney, Nebraska



Mr. Boese writes: "Our 8-cylinder Nordberg Duafuel engine installed in November 1952 now has over 34,000 hours of operation and until our new 10-cylinder unit was installed recently the engine had operated about 83% of the possible time with very little maintenance attention. Recently we checked the liner wear in one of the cylinders and found a maximum wear of .0065". Our bearings have never been replaced and many of the piston rings are still in service. We are still averaging over 9,000 BHP-hours per gallon of lube oil.

The fuel cost of the 8-cylinder unit has averaged 2.91 mills per KWH, based upon 25¢ per million BTU gas and 10¢ per gallon pilot oil. Our average load has been about 74%.

As a matter of comparison our new 10-cylinder Duafuel engine averaged a fuel cost of 2.41 mills per KWH during full load acceptance tests. During these tests we actually handled as much as 30% overload with the engine on gas."

Records like these are the reason why so many orders for Nordberg Diesel, Duafuel® and Spark-Ignition Gas engines are repeat orders. Next time you need long term, dependable power, consult Nordberg . . . builders of America's largest line of heavy duty engines.

NORDBERG MFG. CO., Milwaukee 1, Wisconsin

. . . . . .

Installation Data:

1952—Installed 3060 bhp Nordberg Duafuel engine—2160 KW

1956—Installed 4380 bhp Nordberg Duafuel engine—3125 KW

(Ratings at plant altitude of 4100 ft.)

NORDBERG

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P458

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By FRED GOSSETT
Superintendent of Municipal Electricity

no property damage. The maneuverability of the helicopter made it possible to reach even small areas surrounded by obstacles or peat bogs where no other method would have served. Control of the spray was excellent.

First Spraying

The first adult-control spray was completed on July 1, after considerable delay due to rain. The truck-mounted Hardiemist sprayer covered all areas that could be reached from streets or alleys, and the helicopter hovered its way over the rest. Again, on the advice of the state entomologist, we utilized 3 pints of 25% DDT emulsion to which maliathion was added at the rate of 1 pint 50% maliathion emulsion concentrate per 10 acres covered.

The truck did its work by night while the helicopter operated during the daylight hours. Very few complaints were received. My assistant, John Hane, exercised direct supervision over the operations of the two private contractors in order to provide the necessary close coordination between city and contractor. He received numerous calls from citizens seeking information, most of which were of the "When do I get sprayed?" and "Will it hurt my baby if his diapers get sprayed?" variety.

The helicopter seemed the ideal tool for applying insecticide to areas out of reach of ground equipment. The downdraft created by the blades seems to carry the spray through foliage nicely. And it has been successful in reducing the number of these pests in St. Louis Park.

Long Beach Builds Fire-Police Station

LONG BEACH, Calif. is joining a growing list of cities by enlarging and widening its civic center.

The current program will provide a six-story main building with a two-story wing which will house the central fire station. Construction of the 176,000-square-foot main building and wing is expected to be completed the early part of 1959.

Basement Facilities

Two basement levels below the major structure will be utilized for storage space, police locker-room facilities, and contain various mechanical and equipment rooms, including a gymnasium and squad room.

Ground floor construction will feature wall setbacks with exterior free-standing columns at the building's periphery, allowing for more ground space and varying wall treatments such as the all-glass enclosing walls for the reception-lobby area.

Second floor level will be the "hub" of administration activities and will include the offices of the city prosecutor, public defender, traffic department and divisional police department heads.

The offices of the police chief and the robbery, narcotics, homicide, and petty theft divisions will be located on the third floor. The fourth and remaining floors will comprise the building's jail facilities. A distinct feature will be the special elevators and vehicular ramps to separate prisoner traffic from the public. The special elevator for prisoners will allow their transfer by foot from the upper jail floor to the lower basement level and thence to the future courts building which will be connected to the public safety building by a 400-foot underground tunnel.

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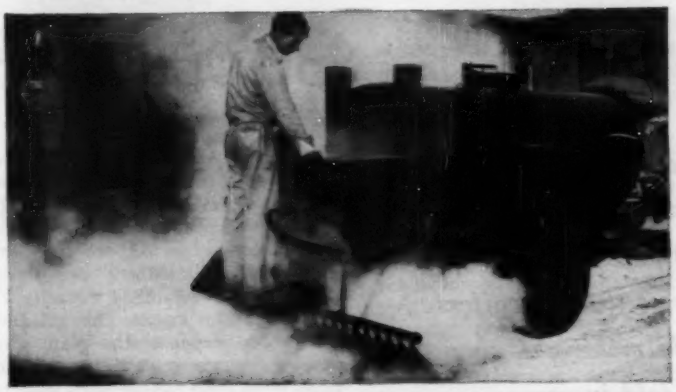

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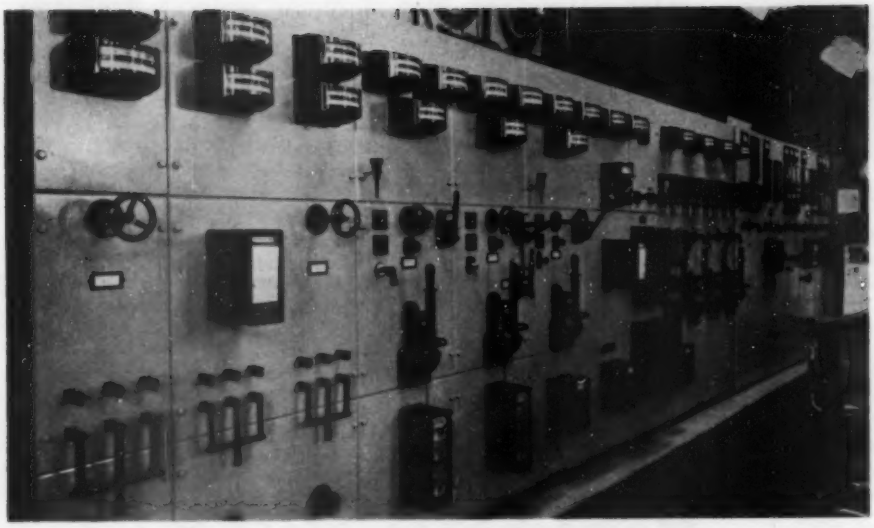
powerful prime mover. Another 2-cycle Nordberg was selected and is now going into service.



By FRED GOSSETT
Superintendent of Municipal Electricity
Vero Beach, Fla.

This compact Allis-Chalmers switchboard serves five diesel engines.

$50,000 Per Year Profit

Vero Beach, Fla., municipal electric plant continues to turn revenue over to the city coffers while making a five-fold increase in generating capacity

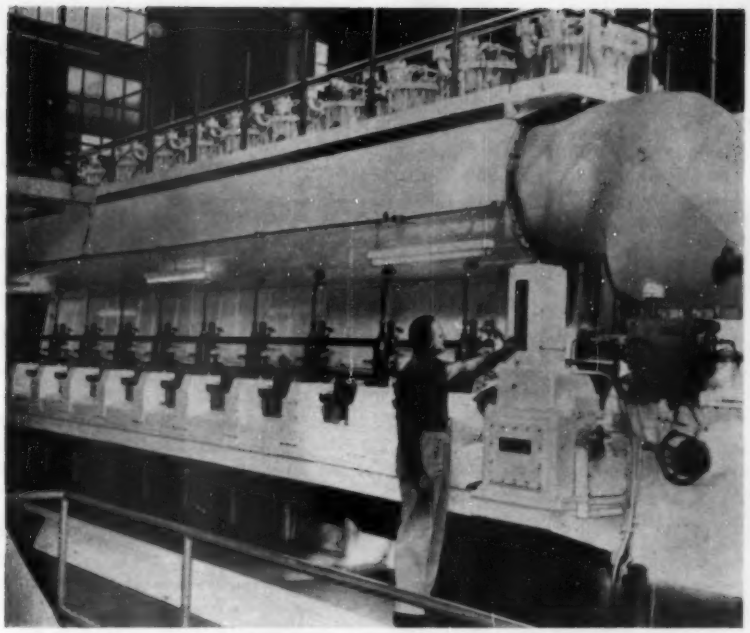
TODAY, Vero Beach's municipal electric plant can generate five times the kilowatts consistently that it could produce in 1952. Within this 5-year period, we have installed three Nordberg diesel engines with a combined capacity of 16,100 hp. But despite this substantial capital expense, the plant still pays the city's general fund somewhat more than $50,000 each year to help ease the burden on the city taxpayers.

Vero Beach is a little city with 7,600 people within its limits, and roughly 11,000 are served by the electric system. During the winter it plays host to approximately 3,000 vacationing tourists. In 1919, when it was incorporated, it had a population of 500 permanent residents. It grew slowly until the start of World War II when its population was 3,000. By 1950 its population was 4,750. It is favorably located, has a moderate year-round climate and is in the heart of the Indian River citrus section.

When Vero Beach was incorporated, it acquired a 35-kw power

fuel storage capacity. All fuel passes

achieve these excellent results. A



The author adjusts synchronizer on the Woodward governor.

plant which soon proved inadequate. Larger units went into service within the next four years, but these were soon replaced by a 525-kw air-injection diesel in 1926 and a 753-kw diesel in 1937. These met the city's needs for many years and are still in service.

However, the post-war era marked the end of the city's leisurely expansion. In 1947, Vero Beach selected and purchased its first Nordberg engine, a 4-cycle supercharged diesel which drives a 1,150-kw generator. Five years later, the city put on line a 4,500-hp Nordberg, driving a 3,200-kw Elliott generator. The next year, the city added still another unit, a 9-cylinder diesel (adding 2,875 kw to the plant capacity) driving an Elliott generator.

Additions

Despite this rapid-fire addition to plant capacity, peak loads continued to climb almost straight up. As a result of studies by consulting engineer Harry W. Damerow, the city elected to acquire an even more powerful prime mover. Another 2-cycle Nordberg was selected and is now going into service.

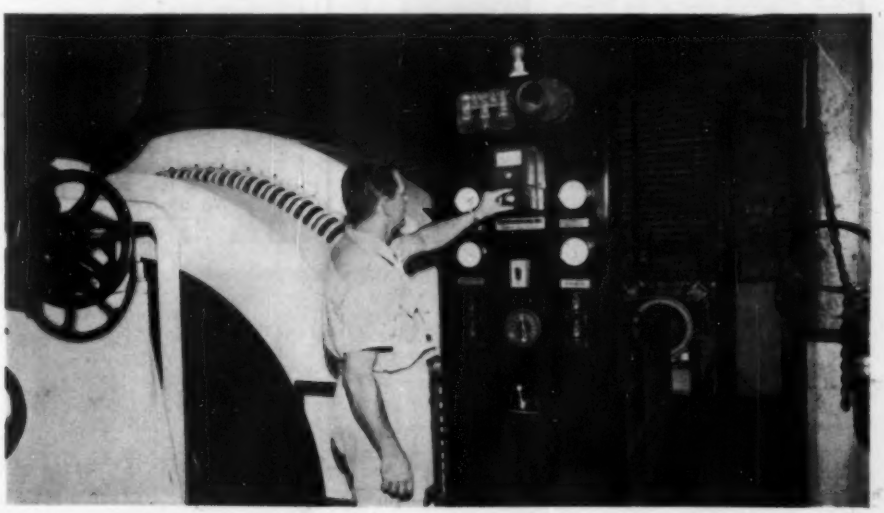
The new engine has 8 cylinders and is rated at 7,550 hp at 189 rpm. It will operate on diesel fuel until natural gas becomes available in this area and then will be converted to a Duafuel unit. It drives a 5,400-kw Elliott generator, and will raise the total plant capacity to 13,925 kw, more than five times the 2,450-kw capacity of just five years ago.

With all this skyrocketing construction, the electric system still contributes an average of about $50,000 per year to the support of the general tax fund. Revenue bonds backed by rates charged for electricity pay for all capital expenditures. The city commits no tax funds

No Tax Fund

A key factor in this strong earning situation is the efficiency of the diesels. The new 4,500-hp engine was the efficiency leader, averaging 13.54 kwhrs per gallon of fuel at an average load of just 63%. The average for the entire plant was a respectable 13.1 kwhrs per gallon. This engine also was sparing in its consumption of lubricating oil, operating 6,835 rated horsepower hours per gallon of lube. The other Nordberg engines also showed good lube economy with 5,857 and 5,665 hphrs per gallon, respectively. Pressure for economy is great, since the plant uses a relatively expensive fuel, a distillate oil costing 11.65 cents per gallon.

Installation of two 25,000-gallon storage tanks more than doubled the



Left:
Municipal power plant in Vero Beach. The building has been extended to accommodate a fourth diesel engine.

Right:
Exhaust temperatures are measured by an Alnor pyrometer on the gauge panel. On this same board are Lonergan gauges and a Viking alarm.

Self-Loading Dempster Dumpmaster

fuel storage capacity. All fuel passes through a 17-element Hilco Duplex cellulose filter which removes particles down to two microns. An additive, Lubaid D, placed into each truckload of fuel before unloading, helps keep the injectors clean.

Maintenance

In a plant where peak loads often have been above firm capacity, engines have to be kept constantly in peak operating condition. The operating staff does its own maintenance and keeps a complete record of performance. There is a separate card for each piston, bearing, cylinder liner, or other major wearing part. It lists the make of the part, measurements, work done, time spent, personnel making repairs, and condition of the part. To increase personal interest, each operator is given primary responsibility for one engine.

Good Results

Inspections show that pistons are still clean after as much as 10,000 hours of operation, and that liner and bearing wear are very low. Careful attention to lubrication helps achieve these excellent results. A detergent-type oil is used in the cylinders and a straight mineral oil in the crankcases of the 2-cycle diesels. Each 2-cycle engine is served by a 20-element Honan Crane activated clay filter to remove impurities and acids. In addition, the plant uses a Hilco lube reclaimer to correct dilution of the oil.

To insure a good film of oil on cylinder liners before an engine is called on to carry load, the operators start a motor-driven DeLaval lube pump and then turn the engine over for about five minutes with the barring motor before starting.

Even Load

The load on the plant fortunately has a tendency to become relatively even. The air-conditioning load fills in the summer valleys, but the winter peaks are still on the upgrade. Most residents feel that the climate here is too mild to justify central heating equipment and so rely heavily on electric space heaters to take the chill out of an occasional winter evening. Nevertheless, Vero Beach has passed through a period of spectacular growth with a highly efficient, heavy-duty power system. We have every reason to believe that the growth will continue and that the city power plant will meet this demand.

Vero Beach Electric Plant
1956 Earnings and Expense Report

Sale of electricity	$695,140
Other revenue	12,826
Total Revenue	$707,966
Production expense	$279,252
Distribution	48,900
Accounting and collections	15,649
Administrative and general	36,360
Transportation	3,691
Total Operating Expense	$383,852
Nonoperating expense	$ 1,864
Total Expense	$385,716
Net Revenue	$322,250
Transferred to:	
Capital expenditure	$ 27,545
Sinking fund	$ 83,714
Renewal and replacement	$111,665
Retained by Electric Dept.	$ 47,252
City General Fund	$ 52,071

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- Brighter light.
- More economical to operate, less initial investment.
- Heavy-duty time-proven flasher mechanism. Electromagnetic pulse mechanism in Escolite has been used successfully for 20 years in other electrical control products.
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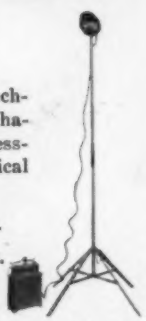
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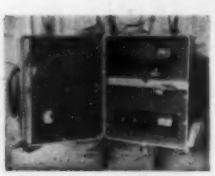

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Municipal

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New One-Man Refuse Collector Holds 60 cu. yd.

At last! A packer that can empty big-capacity containers as well as the small one cubic-yard sizes. Dempster-Dumpmaster Containers are available in one through six cubic-yard capacities, with or without casters. Thanks to a special low-front hand-loading Container, the Dumpmaster is equally at home on a "Containerized" route, a manual-loading route or a combination of the two.

The powerful 60,000 pound pressure hydraulic-packer plate can compact more than 60 cubic yards of loose refuse into its 24 cubic-yard body.

Whether you use it on hand-loading or "Containerized" operations, the Dumpmaster is SAFE! There are no swinging plates to catch men's arms, no shouted signals from the rear . . . all loading work is right in the driver's vision. And he's safe, too! Note that the lifting clearance arms are clear of the cab windows at all times. Write today for complete information.

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Municipal Public Relations

The City Tells Its Story

Edited by PAN DODD EIMON
Executive Director, Government Public Relations Association

Mayor Richard Daley and Public Relations Director Earl Bush show visitor John Huss a giant replica of the pledge tags, used in the cleanup effort to enlist citizen cooperation.

City of Chicago sparks its 1958 Clean-City effort at Special Preview

1,500 Chicagoans See GPRA—Award Film, "Pride of a City"

CHICAGO has just held a civic "pride-fest."

It accomplished three things: gave 1,500 invited guests a chance to see Mayor Richard J. Daley receive a Government Public Relations Association award originally presented in San Francisco; provided a preview of the award-winning film, "Pride of a City," for the guests; and launched the 1958 phase of Chicago's year-round, every year Clean-City campaign.

The film event was arranged by Charles A. Fahey, executive director of Mayor Daley's Citizens Committee for a Cleaner Chicago, the sponsoring group. Direction for the affair came from Earl Bush, public relations officer for the city, and Alice Gorman, whose PR assignment has been the cleanup program. GPRA'ers Gorman and Bush report, "The theater affair was a large success by any public relations standards. It has served as a catalyst in stimulating new interest in the cleanup program. We are beset by eager citizens wishing to participate."

No Preaching

"Pride of a City" tells the story of a typical Chicago family's discovery of pride in their city and the awakening of a sense of responsibility for the conditions under which they live. Handsome residential and business areas along with Chicago's famed skyline are shown. And the film depicts typical situations in which citizens litter parkways and streets thoughtlessly, fail to observe "no parking" signs on street-cleaning days, and show carelessness in disposing of trash and garbage.

But the film doesn't preach. In fact, chairman of judges for the GPRA awards, John Huss, who represented the award to Chicago at the theater rally, had this to say: "The film utilizes the very best public relations techniques to do a selling job—without preaching. The approach, which is one of awakening and stimulating the latent pride of a Chicagoan for his city and of turning this pride into specific action in the city's cleanup effort, is ingenious, compelling, creative."

Hollywood Quality

The film was designed for showing at commercial theaters throughout the Chicago area. In quality (sound, color, photography, timing) it stands up to Hollywood's best. It will be used, according to PRO Bush, to further the educational program of the CCCC, and will be available also to schools, churches, and civic groups.

In the audience which first viewed the film (mayors and public relations officers) in San Francisco, approximately half rated it "outstanding," the second half "good."

Basis for the GPRA special project award is "how completely the activity (the film, in the entry of Chicago) revolves around and involves the individual citizen." Judges Huss, David McGuire of New Orleans, and Douglas Powell of New York City rated the Chicago film high on these specific counts:

- **The role of the individual citizen is spotlighted.** The film elicits a positive citizen response, and the appeal to the citizen is at his level (not at that of an official city spokesman or that of the professional city administrator).
- **The film points toward a desirable goal** (a cleaner city) where a genuine public interest is involved.
- **The film makes clear what is expected of the individual citizen** (enroll in cleanup ranks, abide by the cleanup pledge).

Citizen-City Team

At the Chicago preview, Mr. Huss cited the Chicago film because "it represents an outstanding example of top level political leadership and citizen participation working together in a successful program."

The theater preview gave Field Director Louis P. Farina a chance to report on the cleanup program. He

GPRA award ceremony: Charles Fahey, executive director, Citizens Committee for a Cleaner Chicago; Fahey Flynn, CBS network commentator; Mayor Daley; Commissioner John McGuane, Chicago Park District; John Huss, executive secretary, Municipal League and GPRA judge; and Louis Farina, the Committee's field director. That's the crowd at the preview.

"The film made me want to rush right out and pick up every piece of trash I could find," wrote one guest. That was the reaction Chicago's PR office aimed for. Stills above show sanitation crew at work. They're pictured as important members of the city's cleanup team. So is the film-story family, photographed above in Chicago's beautiful Grant Park.

called the program "unique" because:

1. Of the degree of personal leadership exerted by Mayor Daley.
2. Chicago's program is not merely a big promotional event in the fall and spring. In Chicago, everyday is cleanup day.
3. "We have worked for genuine grass roots participation. For example, in the summer when everyone is somewhat lethargic, we organized a Mid-Summer Cleanup Task Force which worked in neighborhoods throughout the city. The result: 80,000 signed up, pledged new members."
4. It is a cooperative program recognizing the need for full participation on the part of city sanitation forces as well as individual citizens.

PR Dressing, Too

The GPRA award went to Chicago specifically for the film—but it was recognized as but one of many media used to sell the cleanup story.

The theater party was timed to take no more than an hour of a working day—including the showing of the film. It was held at 10:30 a.m. and guests were admitted on presentation of invitations which had gone to key community and citizen leaders.

Guests were served a light buffet lunch in the lounge after the showing (canapes, cookies, cake, and coffee).

Gimmicks for extra sound and color included a talking trash can at the entrance of the theater. When the lid was tilted to receive trash, it also stressed pride. Said the can, "Gee, for a minute, I didn't think you were going to do it. But, in Chicago, it's a matter of pride."

Six rainbow-hued trash baskets, bedecked with silver ribbons, stood inside the lounge, a reminder that cleanup can have glamor. And guests who pledged cooperation in cleanup '58 were labeled with tags in the form of wire-litter baskets.

The preview event got good press coverage. Previewers began scheduling the film for showing to their groups immediately after seeing it. The award-presentation served to give the entire event a lift that the preview alone might not have had.

Said Mr. Huss in his presentation to Mayor Daley, "Human needs have been a first concern in your city. Closely related to these human needs is the need of making our cities sparkle if they are to be the home of the overwhelming number of American citizens. . . . We think other towns and cities over the country can copy the Chicago approach of creating pride in their community, with year-round cleanup as an important by-product."

For information about the Chicago cleanup effort, write to: Mayor Daley's Citizens Committee for a Cleaner Chicago, 69 West Washington St., Chicago 2, Ill. For information about the film, "Pride of a City" (its cost, the film-making process, availability for showing) write to: the Director of Public Relations, Office of the Mayor, City Hall, Chicago 2, Ill.

ACCURATE

THE VOTING MACHINE THAT LOOKS LIKE A BALLOT

FOOL-PROOF

FRAUD-PROOF

IMPARTIAL EXPERTS FIND SHOUP VOTING MACHINES SUPERIOR

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See Photograph Above

B. The Moving [X] Mark
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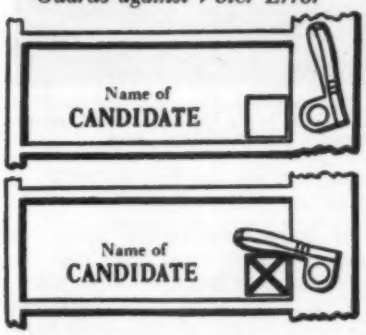
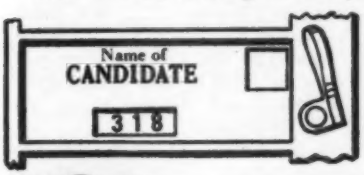


C. Instantaneous Results by Candidates' Name
Directly on the Face of the Machine — No Decoding Necessary.



EXCERPTS FROM REPORT OF MASSACHUSETTS INSTITUTE OF TECHNOLOGY TO THE MAYOR OF BOSTON

Following your request of August 5, we have undertaken a study of . . . voting machines . . .

In summary . . . we prefer the Shoup machine mainly because:

A. There appears to be less chance of confusion and incorrect balloting on the part of the voter, and

B. Less chance of error on the part of the persons delegated to read the machine count and report the vote counts.

VOTING MACHINE COMMITTEE OF WYANDOTTE, MICHIGAN IN A REPORT TO THE MAYOR

. . . After full consideration, it is the opinion of your Committee that the "vertical" type machine [Shoup] is more desirable and more adequately designed and constructed to meet the requirements of the voters of the City of Wyandotte . . .

25 States Already Use Shoup . . . The Voting Machine That Looks Like A Ballot

VOTING MACHINE REPORT OF THE ENGINEERING SOCIETY OF DETROIT TO THE COMMON COUNCIL OF THE CITY OF DETROIT:

Conclusions

. . . Since the Shoup Machine is arranged in party columns and office spaces in the familiar pattern of the Australian Ballot, it is preferable from this point of view.

The operation of each candidate selection lever on the Shoup Machine shows a clearly defined "X" immediately adjacent to the candidate's name leaving both in clear view . . . The Shoup is preferable here.

. . . The position of the individual candidates' counters below their names on the face of the Shoup Machine minimizes the possibility of errors in transcribing the total vote cast from the machines to the tally sheets.

. . . The mechanical safeguards against dishonesty are of better and more effective design on the Shoup Machine.

In view of the above items and considering all factors, the favorable features of the Shoup Machine exceed those of the . . . [horizontal type voting machine.] This conclusion represents the unanimous opinion of the committee with the decision of each member individually determined without consultation with the other members.

The **Shoup** VOTING MACHINE CORPORATION
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Douglas, Ga. Studies Its "X-rays"

This story of what's involved in qualifying for a workable program for urban renewal wherein the federal government pays two-thirds the cost is told in detail in a 41-page report by Douglas, Ga.

By B. D. DAVIS, JR.
Mayor
Douglas, Ga.

A LITTLE over a year ago, we entered into an agreement with the federal government to use Douglas as an example showing how a city under 25,000 could meet the requirements of a *workable program*. Shortly before this we had become actively interested in redeveloping some of our run-down areas through a federal-assistance urban renewal program, wherein the federal government pays two-thirds of the net cost of clearing and redeveloping certain of our blighted areas.

Before the federal government will authorize such assistance it must have assurance that the locality is actively working on a balanced city-wide program to plan for its future and to forestall slum and blight.

This is the *workable program for urban renewal*. It consists of presenting evidence that the city has a sound, continuing program, including at least the following elements: (1) codes and ordinances; (2) community plan; (3) neighborhood analyses; (4) administrative organization; (5) financing; (6) housing for displaced families; and (7) citizen participation.

Douglas is a city of 8,200 people, and seat of Coffee County, in South Georgia. It is governed by a Board of five Commissioners, with the chairman functioning as mayor. A city manager supervises all municipal operations. In addition to the customary water and sewer systems, the city also owns and operates its own electrical distribution system. Plans are under way to bring in natural gas, which the city will also distribute. Developing an approved workable program to the point where we were ready to proceed with our urban renewal program took about one year.

Codes and Ordinances

We had long been aware of the lack of adequate codes and ordinances in Douglas, but before preparing any new codes, we studied those existing to see if use could be made of any portions of them.

We evaluated the present physical condition of all structures in the city. The majority of those homes was found to be substandard due to poor initial design and construction rather than to lack of maintenance and repairs.

Then we considered how many buildings were below acceptable minimum standards of maintenance and sanitation, and to what degree the buildings in Douglas could stand immediate and compulsory upgrading. It would have been unrealistic to try to enforce standards beyond economical accomplishment. We finally decided upon a reasonable and workable standard, although we realized that this was below the optimum we might ideally wish to achieve.

The next stage was to develop a set of codes and ordinances which would reflect these standards. To assist us we evaluated examples of codes and ordinances used in towns of similar size and analyzed them.

Finally, in the light of all the information gathered, new codes and ordinances were drafted to Douglas' individual and specific requirements. These new codes and ordinances, discussed below, consisted of a building code, a minimum housing code, a plumbing code, and an electrical code.

Building and Housing Codes

An adequate building code is part of the basic legal machinery necessary to guide urban development. It applies equally to all types of new building construction, the demolition of buildings, and conversions. Basically, it fixes minimum standards covering both structural safety and safety from fire hazard. Its fundamental purpose is to prevent the building of new structures which, owing to initial faulty design and construction, will certainly become blighted in the future.

The *Southern Building Code*, issued by the Southern Building Code Congress, was adopted by the City of Douglas.

The minimum housing code provides standards for: minimum house space per occupant; sanitary facilities; light and ventilation; heating and sanitary maintenance.

Plumbing Code

Adequate plumbing standards are important in securing sanitation and in ensuring the safety and health of occupants. For the same reasons mentioned in the foregoing paragraph on the building code, the

EDITOR'S NOTE: This article is based on excerpts from *Looking Over Douglas' Shoulder*, a federal Demonstration Grant, Section 314, publication. Copies are available, upon request, from the City of Douglas, Ga., and from the Demonstration Program Branch, Urban Renewal Administration, Housing and Home Finance Agency, Washington 25, D. C.

plumbing section of the *Southern*

sary to many phases of the planning

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plumbing section of the *Southern Building Code* was adopted as being most suited to our needs.

Electrical Code

A good electrical code is another necessary means of ensuring health and safety. We had for our existing code, the *Southeastern Underwriters Electrical Code*. This was retained.

Throughout the process of studying and drafting these codes, the builders, contractors and other persons who would be working under the new codes, as well as the owners and renters of property, were consulted through a series of meetings.

The Comprehensive Plan

Although we thought we knew our town pretty well, we had little factual information available. We did not even have an accurate map of our city.

As the initial step, a legally constituted Planning Commission was set up and a full-time local person was employed as urban renewal director and to serve also as the secretary to the Planning Commission.

At this point, we employed a consulting firm to provide us with planning assistance and to work with our urban renewal director.

Preparation of a Map

From a controlled aerial mosaic which we had made of the entire urban area, at 400 feet to the inch, an accurate base map was made of the area. On this map were placed all property lines as they were obtained by examination of plats on file in the Court House. An enlargement, at 100 feet to the inch, of this aerial mosaic was made of our downtown area, and a detailed map made from this photo showing the exact location and shape of all buildings in this important area. A similar enlargement and map were made of the urban renewal project area.

Our planning consultants called in a firm of economic consultants who specialize in the southeast region to:

- analyze the economy of Douglas as to future growth of industry, business and homes.
- estimate the rate at which industrial, commercial and residential land, if placed on the market as a result of the urban renewal program, could be sold.
- recommend measures to attract new industry.
- develop a program for rehousing families to be displaced as a result of urban renewal.

To provide the information necessary to many phases of the planning program and to the urban renewal project, a house-to-house survey was made.

Existing conditions of the urban area's present traffic pattern were closely examined. Right-of-way widths, pavement widths and traffic volumes were studied to determine the adequacy of the present system and the need for new facilities or improvements of old thoroughfares.

Central Business District

This all-important commercial core of our city and its four-county trade area was studied and some changes recommended:

- develop a one-way street pattern.
- a civic center downtown.
- a Farmers Market near the civic center.
- eliminate angle parking and provide off-street parking.

Neighborhood Analysis

This element of the workable program breaks the city down into smaller study areas. Here again we felt the need for basic research to precede technical recommendations. The basic information needed was:

- location and number of all substandard structures.
- location of mixed land uses, such as the intrusion of business structures into residential neighborhoods.
- age and type of the residential structures.
- location and adequacy of utilities serving each study area.
- location and adequacy of schools, parks and playgrounds.
- other environmental conditions, such as topography, street lighting, etc.

Administrative Organization

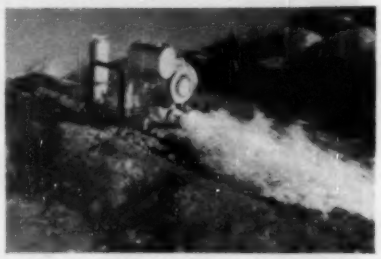
Most of the changes listed below were worked out as a result of discussions between the Planning Commission, the city commissioners, the mayor, and our planning consultants:

- A new Department of Urban Renewal has been created under the mayor and the city manager.
- A seven member City Planning Commission has been created.
- A Director of Urban Renewal has been appointed, at $6,000 a year.

Financing

Douglas has been able to operate through the years without many of the financial problems which harrass many similar cities. Our city

Full Line of Carryable Construction Equipment Now Offered by Homelite



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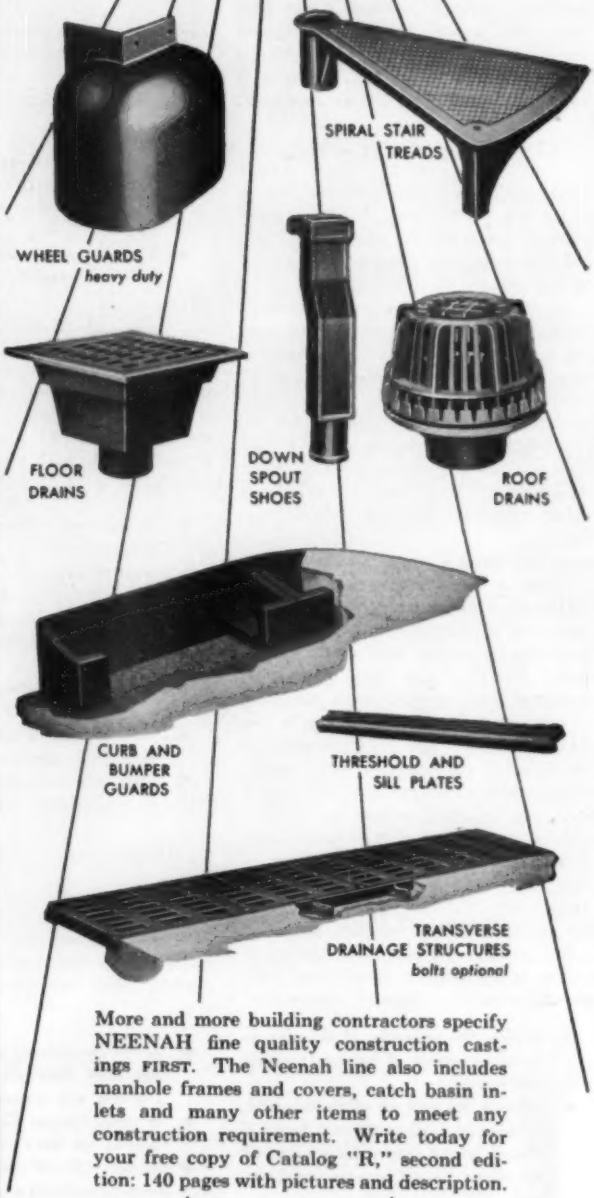

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Chicago Office 5445 N. NEVA AVE., CHICAGO 31, ILL.

derives considerable revenue from the sale of both water and electricity. As a result, the city has an ad valorum tax rate of only nine mills, and has resorted thus far to the issuance of bonds to less than one-third of its authorized bonding capacity. This is in contrast to a comparable neighboring town which has a 25-mill tax rate and is bonded to its full capacity.

The office of Building Inspector can be partially self-supporting. Annual building permit fees amount to over $2,200. Parking meter fees average $10,000 derived from meters covering only a small portion of the central business district.

Our three primary concerns in this field of municipal financing were to: (1) investigate and to document our ability to finance the renewal program in which we are engaged; (2) improve our financial procedures; and (3) develop a program of planned capital expenditures.

Development of an effective program for the relocation of displaced families involves a study of needs, attitudes, standards, and economics.

Citizen Participation

There was no organized method whereby the citizens of Douglas could take joint action on matters of common interest. Douglas was civic-minded. In a sense it was interested in planning, but did not know how to set about it. We decided not to direct our efforts predominantly towards the organized groups in the community, but toward the entire citizen body.

The most effective means of communicating the purposes and proposals of both the planning and renewal programs to the people of the community was a series of three small pamphlets which were written and printed during the planning period. These pamphlets were simple, inexpensive, three-fold affairs, generously illustrated with simple sketches, which explained in simple terms the purposes and some of the procedures of planning and renewal. These little pamphlets were distributed to every mailbox in town.

Citizen participation is, in our opinion, the most important element of the entire workable program. The people in an urban renewal project area should receive special consideration. They understandably have personal fears as to what the program will mean to them. They deserve to have access to all the facts regarding the program and to have a means available to express their needs and opinions.

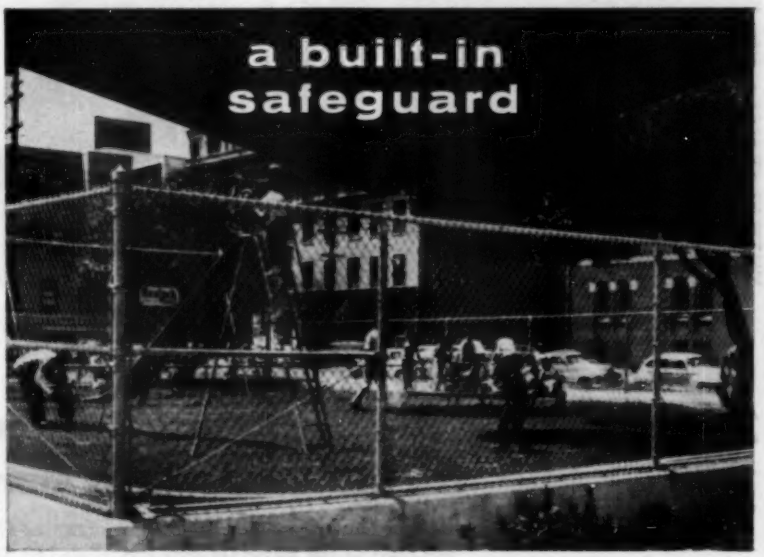
Monterey Park Makes a Place for Industry

A NEW industrial area came into being outside Monterey Park, Calif. when the D & E Corporation moved some 1,400,000 cubic yards of earth along the Monterey Pass Road. The big project moved the side hills back to provide deep lots for the light industry development.

Work Involved

The project required rebuilding of the Monterey Pass Road, raising it approximately 20 feet in places, and resurfacing it with concrete and asphalt. The work required 13,400 linear feet of 12-inch sanitary sewer; 6,200 feet of cement-lined cast-iron water pipe 12 to 16 inches in diameter; and 5,300 feet of reinforced-concrete pipe for storm drainage purposes. In addition, some 4,000 feet of natural gas lines and major telephone and power lines had to be installed.

The project was designed by MacIntire & Quiros, Los Angeles consulting engineers.



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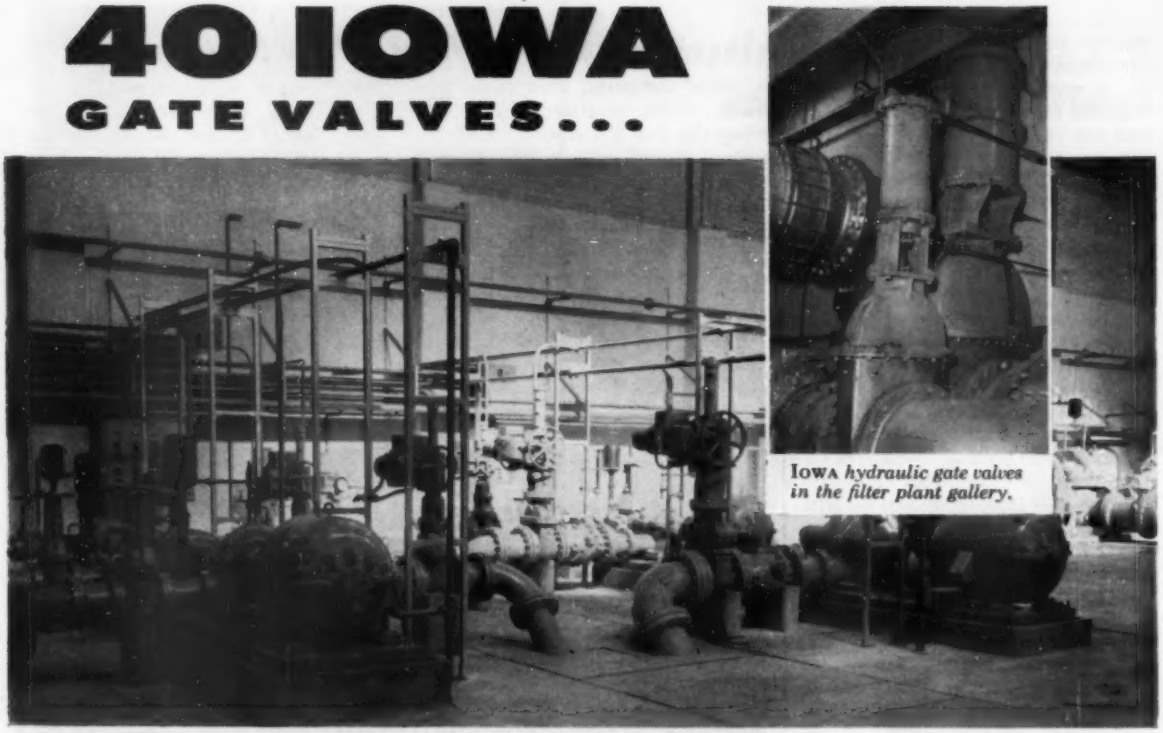


IOWA *hydraulic gate valves in the filter plant gallery.*

IOWA *motor-operated gate valves installed in the main pump station of North Texas Municipal Water District. (General Manager: Mr. A. P. Rollins; Consulting Engineers: Forrest and Cotton; Design Engineer: Mr. Ormond A. Stone.)*

Control delivery of
20 million gallons of water a day
for the North Texas Municipal Water District

• Forty IOWA Hydraulic and Motor-operated Gate Valves—from 4" to 30" sizes—are used in the Filter Gallery and High Lift Pump Station of the North Texas Municipal Water District, supplying 10 North Texas Municipalities and the District's largest customer, the City of Dallas. Additional IOWA gate valves are used in the six pumping plants operated by the district.

The Filter Plant, located at Wylie, Texas, has a capacity of 20 million gallons a day. However, the design is such that it can operate safely at twice this amount. Water is delivered to the ten member municipalities and the City of Dallas through 90 miles of transmission line, ranging from 12 to 42 inches in diameter.

This Texas application is typical of the ability of IOWA to furnish gate valves to meet the most exacting specifications for plant and distribution service. Be sure and check the wide variety of IOWA valves, accessories and specialties before you place your order.

Let us send you details on Iowa's complete line of valves and hydrants

IOWA
VALVE COMPANY
A Subsidiary of James B. Clow & Sons, Inc.
Oskaloosa, Iowa

Practical Air Pollution Control in Philadelphia

By P. W. PURDOM, *Director*
Division of Air Pollution Control and Environmental Sanitation
Department of Public Health, Philadelphia, Pa.

PHILADELPHIA is now engaged in developing a practical program of air pollution abatement that will be sensitive, on the one hand, to the health needs of people and, on the other, will foster the economic expansion of the city.

In Philadelphia, the citizenry, the city administration, and the City Council have frequently expressed concern over the problem of air pollution abatement. The people have been primarily disturbed by the nuisance, whereas the health department has had to face the basic technical problem. What degree of control is required to protect the public welfare without at the same time hampering the free development of the local economy?

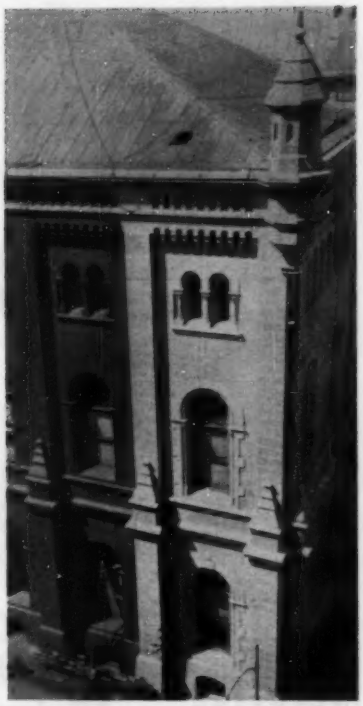
Documented Health Hazards

Historically, the case for control is sound. The episode in Donora, Pa., in 1948 left little doubt that air pollution can kill. We have documentation of the severe fog attack in the Greater London area, accompanied by a death rate nearly 400% of the five-year average, approaching that of the disastrous mortality rate of the 1918 influenza epidemic.

The scientific problem, however, is not made less complex by the fact that the smog attacks in Los Angeles during the fall of 1954 failed to show any correlation with the general mortality, or deaths attributed to respiratory or heart disease. The chief health effect of smog has been a nuisance—an irritation of the eyes, nose, and throat.

Operation

Philadelphia has centralized all control activities in a section of the Division of Air Pollution Control and Environmental Sanitation. We have a full-time staff of eight engineers and nine air-pollution inspectors; five of the latter operate in assigned districts during the day to locate and identify air pollution violations. These men use cars with 2-way radio and can investigate complaints in minutes; the other three men work in shifts which provide city-wide coverage 24 hours a day, every day.



A building in Philadelphia sheds a 50-year encrustation of air-borne grime.

Inspectors are experienced in the operation of fuel-burning equipment; they concentrate their efforts on helping to solve operating problems that cause smoke, soot, and other air pollutants. Where equipment and facilities are inadequate, the situation is referred for investigation by our engineers.

Permits Required

Obviously, it is easier and less costly to provide for air pollution control on the drawing board than it is after construction; therefore, anyone planning to install fuel-burning equipment, process equipment, or air pollution control devices is required to obtain a permit before building.

The Division also maintains an industrial chemical laboratory and for several years has maintained sampling stations in the city as part of a joint project among official agencies for an air sampling program in the Delaware Valley.

Aids Police and Fire Departments

The section investigates suspected toxic or explosive gases and advises the Police and Fire departments concerning emergency measures needed to protect lives. For example, one of

Engineers sample sulfur dioxide from a metal smelting process during survey.

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What's more, in adding extra legibility, Lyle's *deep embossing* increases strength and rigidity of signs in much the same way that corrugating does to other metal products.

At left you see unretouched photos of male and female dies for a Lyle "Yield Right of Way" Sign. You can see from the height of one and the depth of the other that embossing will be *deep*. (Letters stand out in bold relief from the sign background—making even an unpainted sign highly legible without benefit of contrasting enamels.) This *deep embossing* is just one more reason why you'll know you're getting the best when you buy Lyle Signs!

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care in selecting competent operat-

and in some instances in their oper-

Philadelphia produce only a minor

our inspectors responded to a complaint of gasoline odors on a downtown street. Using his explosimeter, he found an extremely dangerous condition in the basement of an apartment house. Police immediately evacuated the residence; the inspector traced the leak to a nearby gasoline station; the tank was drained and a city crane rushed to the scene and removed it; the fire department flushed the sewers and ventilated the basement with blowers having explosion-proof motors. After several hours, the building was declared safe enough for the families to return.

Another inspector detected gasoline seeping down the wall and collecting in a pool in the bottom of a new subway extension. In this case, he found defective fittings on a pipe leading to the gasoline pumps at a nearby filling station.

On another occasion, our men were called to a clothes manufacturing plant on the fourth floor of a six-story loft building where a number of workers had been overcome. In the same room with the workers were two gas-fired boilers that supplied steam for the pressers. The boilers vented through an outside wall to a stack extending upward about 3 feet. The only source of intake air was an adjacent window, and exhaust fans moved air from the area of the boilers to the work area.

Problem Solved

Apparently an inversion that day affected the draft on the flue, and this, coupled with a reduced air pressure in the room, resulted in carbon monoxide of about 1,000 ppm in the vicinity of the boilers. At our suggestion, the manufacturer solved the problem by extending the stack to the top of the building and enclosing the boilers in a separate room.

By far the most frequent emergency situations result from defective coal-fired equipment in older houses. Improperly maintained flues or furnaces allow gases to enter the living area. Unfortunately, some of these cases are not discovered until the occupants are found dead.

The emergency service is important and has saved lives; but it constitutes only a fraction of our total work, and is incident to our regular duties.

Obviously, a proper understanding by industry and the public is necessary to create and maintain a satisfactory atmosphere. The public must realize that, once problems are identified and solutions designed, it still takes time to change equipment and operation. On the other hand, it is industry's responsibility, as a good neighbor, to know what is being discharged out of the stack into the atmosphere.

Unfortunately, our office is sometimes viewed with suspicion. The legal counsel of one company insisted that the stack emission was not an air pollution problem so persistently that we prepared to institute legal proceedings. At a preliminary informal conference, we learned that the company had retained a consulting engineer to solve the problem that the lawyer said did not exist.

Inspectors have learned not to be trapped by citizens' quick accusations of pollution sources. For example, our office was deluged with complaints of a sewage smell in the air in southwest Philadelphia near the city's new sewage-treatment plant; but we needed several days of work to determine that this source could not be responsible. Another new treatment plant outside the city limits proved to be the culprit.

Sometimes a company will go to considerable expense to install proper equipment, but will fail to take equal

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Most operations in the water processing line cost money . . . with little or no opportunity to make them pay for themselves.

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FOR BETTER WATER SERVICES

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care in selecting competent operating personnel. Coal-fired equipment frequently smokes when it is stoked too fast. Occasionally a person will convert from coal to oil to eliminate air pollution only to find our men still knocking on the door. Oil installations improperly operated can produce copious amounts of soot and give trouble in summer when they operate on light loads.

Industry cooperation always is heartening. For example, since 1950 the public has shown increasing interest in gas-fired domestic incinerators. Deficiencies in early designs, and in some instances in their operation, caused neighborhood odors. When this problem was discussed with representatives of the local gas company, they agreed voluntarily to suspend sales promotion until the units could be perfected.

Auto Exhaust

On the other hand, the problem of the exhaust from internal combustion engines has yet to be solved. Locally, public attention seems to be focused on exhaust from diesel engines; but actually, diesel engines in Philadelphia produce only a minor fraction of the air pollution from internal combustion engines. By far the greater portion comes from the exhausts of thousands of cars operated every day.

Pollutants of concern from automotive engines are carbon monoxide, aldehydes, oxides of nitrogen, and hydrocarbons. Gasoline engines produce more carbon monoxide; diesels emit more aldehyde; and both discharge other pollutants.

Improved engine design in recent years has reduced the carbon monoxide emission so that total levels have been reduced even though the number of cars have increased. Spot checks in Philadelphia streets show that low and safe levels of carbon monoxide are being maintained.

Future

Looking into the future, we will have to attack more problems on the basis of mass emission as well as concentration. For example, a large power plant using 60 tons of coal per hour may be able to remove 96% of the fly ash that otherwise would go up the stack. Even so, it still discharges over four tons of material into the air every 24 hours. If the efficiency is increased to 98%, it will reduce the amount of material emitted by half.

We undoubtedly will rely more on monitoring in the future rather than on complaints. We will make a long-range survey that will locate and identify sources of air pollutants and evaluate efficiency of control methods.

Basically we know that control efforts must be intensified if the natural ventilation capacity of the city is not to be exceeded. Philadelphia is fortunate because local topographical and meteorological factors are favorable and there are no restricting land basins or bowls to interfere with normal ventilation.

But it is possible, even here, to pour wastes into the sky faster than natural ventilation can remove it. Our goal, which is the goal of any air pollution control agency, is to keep the contaminants below the critical point.

For Better Protection

Properly trained, police can give better protection patrolling alone than in pairs, according to a study of one-man patrols made by the St. Louis Governmental Research Institute in 15 cities with populations over 400,000.

High quality water service bronze, 85-5-5-5 mix . . .
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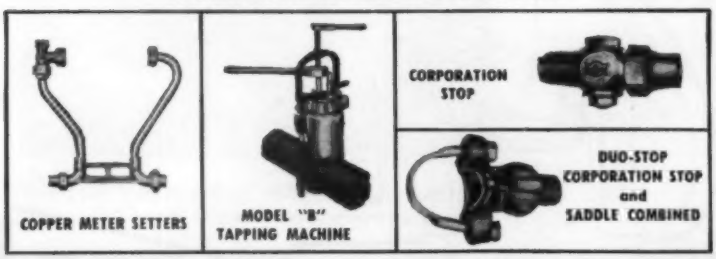

Increasing sales of HAYS quality products enables us to enlarge our sales force. Write us if you are interested in selling for HAYS.

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ROAD STABILIZATION CAN BE EASY AND ECONOMICAL, TOO

Only 6 Steps in New Sterling Salt Plan

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1. Scarify surface uniformly to minimum depth of three inches.
2. Test materials for compactability.*
3. Spread Sterling Rock Salt on surface. Use 18 to 30 tons per mile of 20-foot road.**
4. Dry-mix materials with blade. Spread uniformly over road surface, preserving an "A"-type crown.
5. Use water if it is available.
6. Roll if possible, or allow materials to be compacted by traffic.

Initial costs of this program are low. And, equally important, roads stabilized with Sterling Rock Salt cost less to maintain! The six-step program can be accomplished with locally available equipment . . . which further reduces costs of stabilization.

*Simple fist test is all that's necessary. Moisten handful of road material and squeeze it. Mass should retain shape when you release fingers. If not, there is too little binder in soil. Stabilization is not advised until proportion of binder is increased.

**Sterling Rock Salt may be applied before or after scarifying. Depth of stabilized materials should not be less than 3 inches.

FREE . . . SALT-STABILIZATION CASE HISTORIES. This folder contains editorial reprints describing techniques and results. Can be helpful to you in planning stabilization for your roads. Just fill in coupon below.

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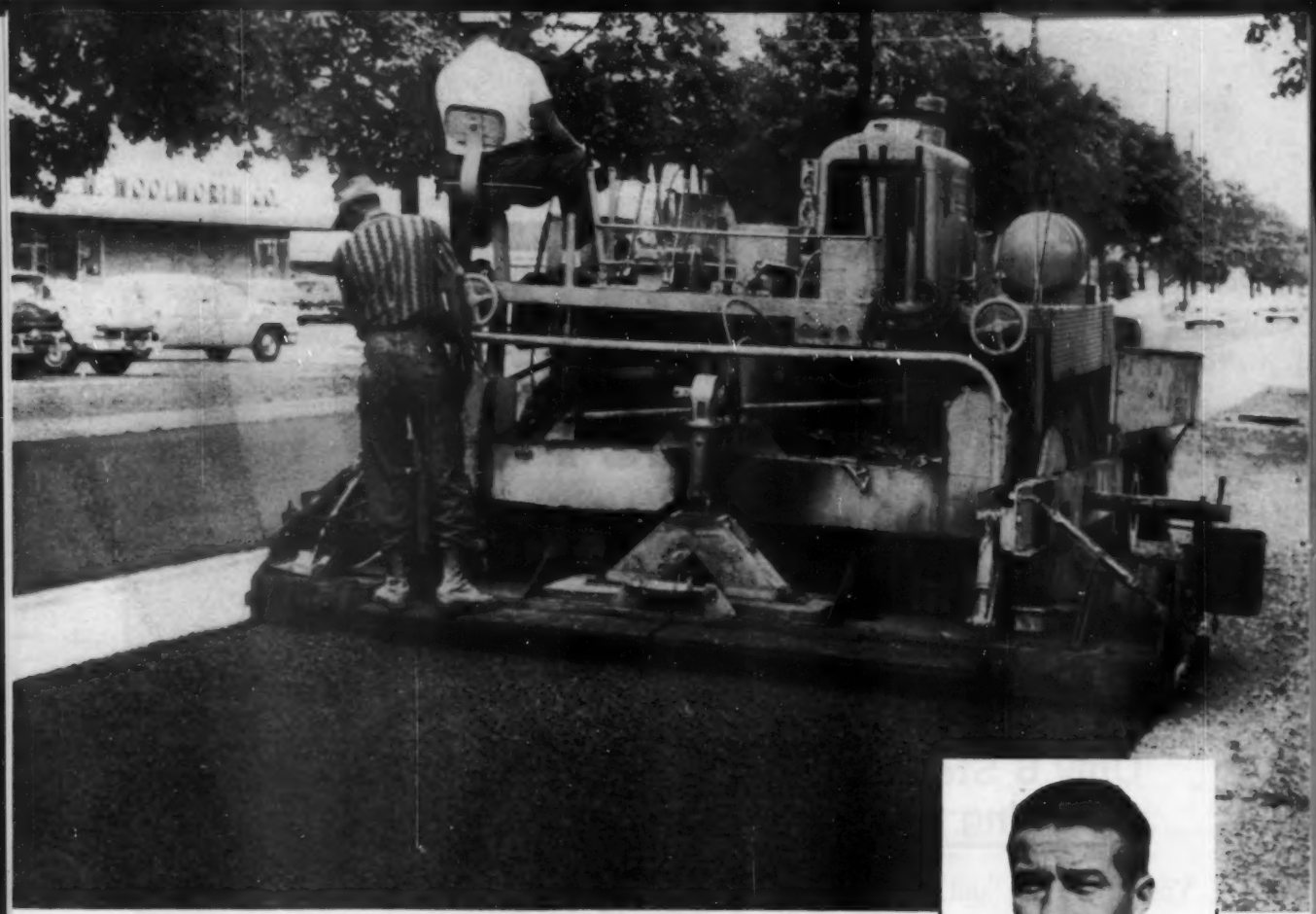

James "Pepper" Cunningham, partner, A. J. Cunningham & Sons of Trenton, New Jersey, found the speed of paving by the PF-90 one and one-half times faster, with less downtime, minimum maintenance costs.

"Everything about the Blaw-Knox unit has been engineered for speed"

That's how James "Pepper" Cunningham feels about his 12-foot Blaw-Knox PF-90 Paver. The former stock car and midget auto racing champion says the maneuverability and speed of the PF-90 helped his crew maintain schedules in spite of two-way continuous traffic while resurfacing 3100 feet of Parkway Avenue, a heavily-travelled artery in Trenton, New Jersey.

Rubber tires on the PF-90 were a big time-saver. They made it possible to get back and run a new lane faster. Levelling was changed instantly in the case of a small dip. The operator adjusted the depth of the binder instantly instead of a 10-foot run experienced with a previous machine before repositioning. In addition the two-speed tamper made it possible to match tamping to travel speed.

Big capacity fuel tanks for the screed heater and engine helped to keep the PF-90 operating for 10 hours without refuelling stops. The screed heater got underway faster, heating the binder to 300°F. in 15 minutes. Simple, easy to operate controls, independent for each operation, made for higher rates of production. Mr. Cunningham says this is equivalent to saving lots of downtime, especially in city paving operations.

In three months the Cunningham organization experienced no downtime, and only one hour each day was required for lubrication and refuelling. Outstanding performance and speed from high capacity machines like the PF-90 can help build your profits. Your Blaw-Knox Distributor has all the details. Why not check with him soon?

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Construction Equipment Division

30 Charleston Avenue, Mattoon, Illinois

Heavy-type vehicles await a 1,000-mile check-up in the service yard.

Preventive Maintenance Earns $324 per Vehicle

Madison, Wis., finds that a Central Motor Equipment Department brings savings

By P. J. CURRAN
Motor Equipment Superintendent
Madison, Wis.

IN 1954, Madison launched an investigation into the possibility of establishing a motor equipment department, with preventive maintenance as its cornerstone. As a result, the new motor equipment department came into being.

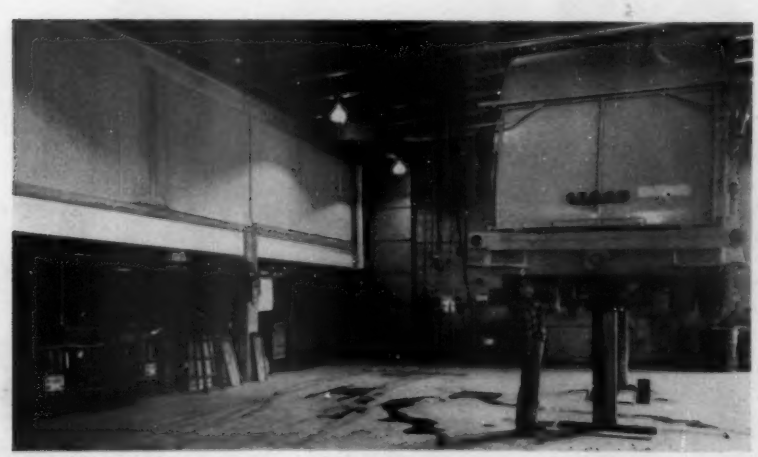
The preventive maintenance system consists of anticipating and correcting foreseeable breakdowns prior to their occurrence through the use of scheduled inspections. Under this plan, each unit is assigned a maintenance and inspection schedule procedure, ranging from servicing through rebuilding within defined mileage or time limits. The plan also utilizes a centrally maintained record system. Originally we based the maintenance on the recommendations of the manufacturers, but as time went on the maintenance schedule was refined and we were able to adjust it to our specific needs and realize certain savings.

Police Car Maintenance

While all municipal vehicles operate under this plan, one of the most important groups is the police patrol cars. With their 24-hour schedule and the constant driving demands made upon them, they are naturally subject to many mechanical failures.

These police vehicles are checked every 1,000 miles, at which time they are lubricated and oil is changed. During this 1,000-mile time period, the vehicles receive partial checks. Failures noted are, of course, corrected immediately.

As each reaches the 5,000- and 10,000-mile mark it undergoes a thorough inspection and is checked from top to bottom. In many cases, however, the 1,000-mile "spot" check



A refuse collection truck receives a periodic greasing in the service department of the Madison, Wis., Municipal Garage.

The Texas Made Water Meter All America Brags About

The

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All bronze, Split-case
WATER METER

DEPENDABLE, ACCURATE, CAREFREE

Manufactured by
WELL MACHINERY & SUPPLY COMPANY
Division of Worthington Corporation
Fort Worth, Texas

Light-type police patrol vehicles give better service through the help of the preventive maintenance program.

keeps failures from becoming serious.

The 5,000- and 10,000-mile checkup includes checking tubeless tires, engine, cooling system, carburetor, electrical system, front end, transmission, rear axle, brakes, and the body and frame.

Saves Nine Cents Per Mile

In 1956 before this program was put into effect, the cost per police vehicle per mile was 5.3c. Present cost under this new system is 4.4c per mile, a saving of 0.9c per mile. With each vehicle traveling an average of 3,000 miles a month, the yearly saving is $324 per vehicle each year—or a fleet savings of $8,748.

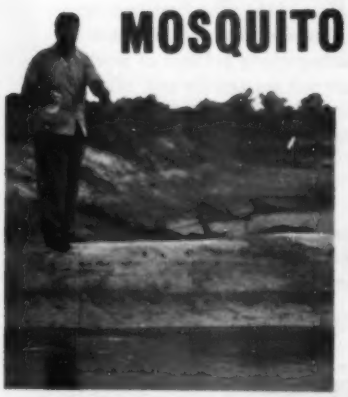
An important requisite of the preventive maintenance system is the central maintenance of service records and cost for each separate item of equipment. In addition, such records provide the superintendent with information which enables him to keep department heads advised as to the most economical and efficient operation of the vehicles.

We maintain 351 pieces of equipment. Our present personnel strength is 25 employees for a ratio of one employee per 16 vehicles. The ideal ratio probably would be one employee per 10 vehicles.

Our shop facilities are excellent. We occupy a building having 42,000 square feet of floor space, and an adjoining outside lot of equal space.

All things considered, a well administered preventive maintenance program prolongs life of vehicles, gives better vehicle availability to participating departments, holds down the need for capital outlay in vehicle procurement and results in better and more economical service in well-kept vehicles.

TOSSITS KILL MOSQUITO LARVAE



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IDEAL FOR HARD TO REACH AREAS

ONE MAN WITH TOSSITS DOES THE WORK OF FIVE WITH HAND EQUIPMENT

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All-Rubber SAFE-T-CONES available in 3 SIZES!

Painted or Reflectorized ALL RUBBER

Regular all-rubber SAFE-T-CONES, now better than ever. Painted standard red and yellow or reflectorized.

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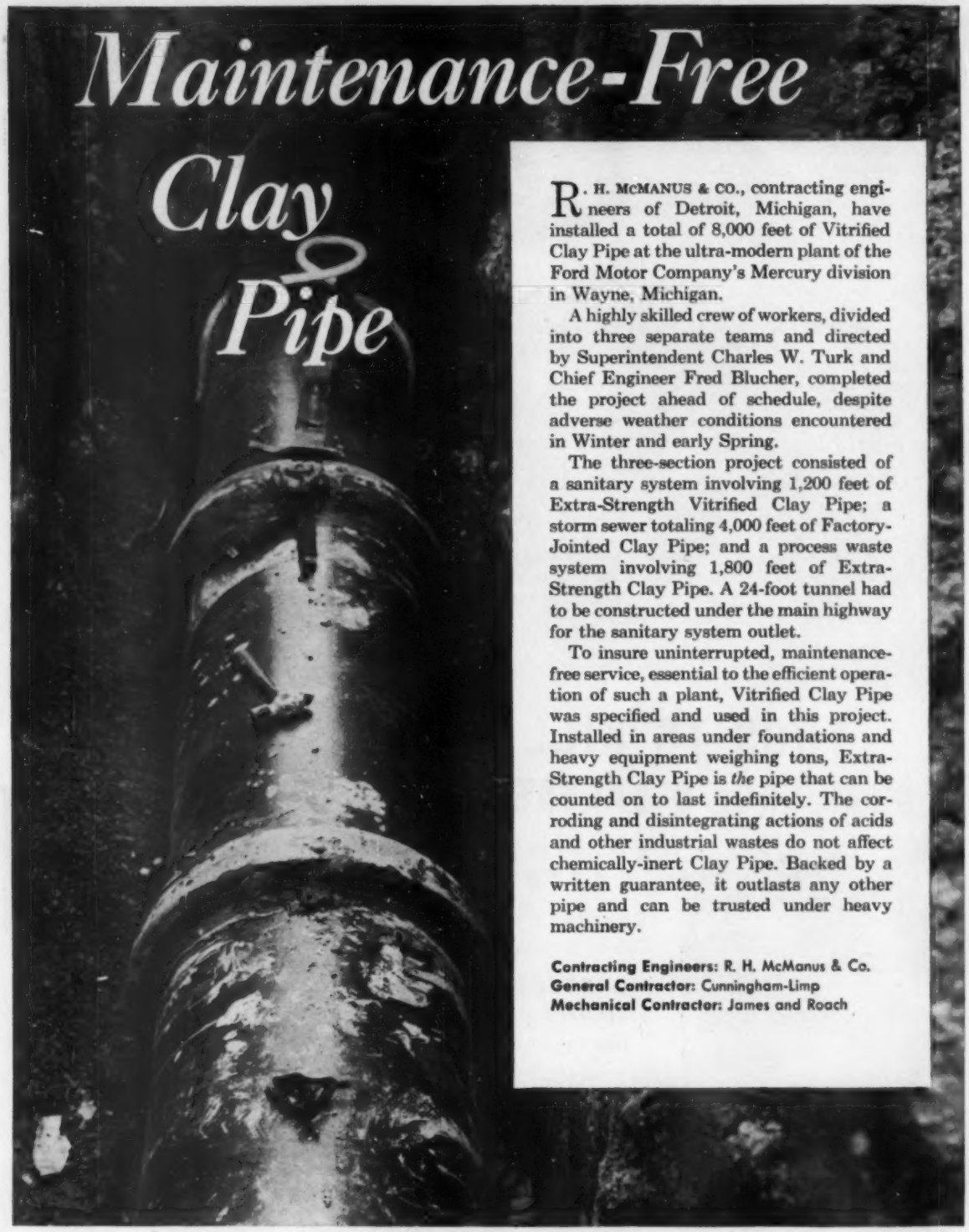
New Poly-Cones and All-Rubber cones available in brilliant orange-red fluorescent for extra brilliance, day or night.

SAFE-T-CONES made only by **Radiator Specialty Co.**
Charlotte, N. C.

Maintenance-Free Clay Pipe



R. H. McMANUS & CO., contracting engineers of Detroit, Michigan, have installed a total of 8,000 feet of Vitrified Clay Pipe at the ultra-modern plant of the Ford Motor Company's Mercury division in Wayne, Michigan.

A highly skilled crew of workers, divided into three separate teams and directed by Superintendent Charles W. Turk and Chief Engineer Fred Blucher, completed the project ahead of schedule, despite adverse weather conditions encountered in Winter and early Spring.

The three-section project consisted of a sanitary system involving 1,200 feet of Extra-Strength Vitrified Clay Pipe; a storm sewer totaling 4,000 feet of Factory-Jointed Clay Pipe; and a process waste system involving 1,800 feet of Extra-Strength Clay Pipe. A 24-foot tunnel had to be constructed under the main highway for the sanitary system outlet.

To insure uninterrupted, maintenance-free service, essential to the efficient operation of such a plant, Vitrified Clay Pipe was specified and used in this project. Installed in areas under foundations and heavy equipment weighing tons, Extra-Strength Clay Pipe is *the* pipe that can be counted on to last indefinitely. The corroding and disintegrating actions of acids and other industrial wastes do not affect chemically-inert Clay Pipe. Backed by a written guarantee, it outlasts any other pipe and can be trusted under heavy machinery.

Contracting Engineers: R. H. McManus & Co.
General Contractor: Cunningham-Limp
Mechanical Contractor: James and Roach

C-155-3

Vitrified **CLAY PIPE** *Never Wears Out*

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PICK UP EVERYTHING

Let's be Ready for Municipal Automation

By JOHN W. SULLIVAN
Senior Administrative Assistant
Bureau of Engineering
Department of Public Works
Los Angeles, Calif.

THE average employee work week has been reduced from 60 to 48 to 44 to 40 hours per week, and already several union contracts have been negotiated with 35 hours as the basic work week. Competition in the labor supply will force municipalities into these shortened work-week trends. However, when industry shortens the work week it does not lessen the total production from these employees. It is by the application of mechanization and automation that production remains constant or may even increase. Cities then must increase present services to the public with the application of these same automation methods. The alternative, when the work week goes from 40 to 35 hours, is to add one new employee for every eight employees, an increase of 12½% to the present payroll to maintain the same employee work hours.

Averaging the total budget as 75% for salaries, to shorten the work week to 35 hours would increase taxes by 9% and a 30-hour work week by 18%-19% for the same services.

It is the author's feeling that in many cases disappointment with electronic equipment is mainly due to insufficient planning. It requires:

1. Analyzing information requirements.
2. Analyzing technical problems for utilization.
3. Analyzing administrative problems for installation and integration of procedures.
4. Studying other installations.
5. Selecting a pilot program.
6. Integrating changes systematically.

A governmental agency usually does not produce a product but services the desires of its citizens. The output is intangible, i.e., public safety, public welfare, control activities, etc. Such functions require handling data and quantitative recording. These activities lend themselves to electronic and punched-card data processing.

When the public official begins to study mechanization he is faced with several technical problems such as the following:

1. The ideal machine for universal utilization has not yet been developed. Electronic firms are still developing units that out date some not yet installed.
2. Generally it is found that the machine can do more than was originally planned. When more functions are added it becomes evident that the machine has limitations and the system must be changed or a new type of machine must be used.
3. As yet no readily applicable formulas have been developed for use in other planning installation of mechanized procedures and equipment in municipal government.
4. Few agencies have the necessary technical employees, and systems analysts are already in short supply.

It is human nature that any change will be resisted and resented. Therefore:

1. The personnel must be made a part of every phase of the procedure to allay fear of the unknown.
2. Managers must be taught the common language of automation and its uses, and must actively become a part of both the planning and the installation of new procedures and equipment.
3. Administrative procedures of indirect operations must be developed before utilizing the machines, because machine utilization affects many functions besides those being directly changed.

Because an ABC 592 solved a problem in some other city or even another department in the same city does not mean it will solve the new problem. For example, a machine developed for accounting practices should not be used for a mapping activity. A separate machine will generally solve the mapping problem better than the attempt to convert the mapping procedure to an accounting procedure.

The changing of an entire communication or information process in an organization affects *all* members. A random, piece-meal approach can wreak havoc with morale. A systematic, orderly approach is needed.

Council-Manager Plan Continues to Grow

TODAY, 1,550 North American municipalities use the council-manager form of government. These cities serve a combined population of more than 31 million persons. Over half of the council-manager cities in the United States have a population of between 25,000 and 100,000. Once the cities adopt this form of government, they rarely abandon it.

Manager's Duties

In the council-manager municipalities, the city councils determine the policies and administrators are appointed to carry them out. These administrators, or city managers, supervise the enforcement of the municipal laws and ordinances; appoint and remove department heads; and supervise the administration of the government. In their other functions they recommend measures to the city councils for adoption; keep track of city finances and prepare the municipal budgets; and report to the city councils on the operation of their governments.

The characteristics of a typical city manager are as follows: he is not usually a resident of the town or city he serves; he has had prior experience in other governmental positions; he does not take an active role in local politics; he is a college graduate, probably with some graduate training; and, he serves a municipality for an average of five years.

The International City Managers' Association, 1313 East 60th St., Chicago 37, Ill., has prepared a pamphlet entitled "Questions and Answers" dealing with the city-manager plan. Copies are available at 10c each.

Don't Follow Those Fire Trucks

FIRE BUFFS have become unpopular in Wetumka, Ala. The mayor and city firemen are putting on an educational campaign to keep local citizenry from following the fire trucks to fires, according to the Alabama Municipal Journal.

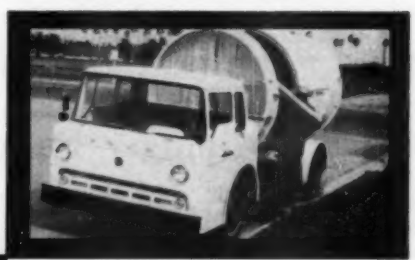
with PAK-MOR Refuse Collection Bodies

PAK-MOR—the refuse collection packer body with the large, unlimited loading area—allows you to completely pick up all trash and refuse at every pickup. No special trips for large bulky objects. Nothing left to become an eyesore or breeding place for rodents and vermin.

WITH PAK-MOR every Residential or Commercial pickup is a clean-up campaign! Direct Compaction allows more pickups faster and gives years of trouble-free service. Advanced mechanical design with few moving parts allows fast lubrication and maintenance.

A PAK-MOR DEMONSTRATION in your own city—under your own actual working conditions—will show you how PAK-MOR can do a better job for you.

Even washing machines create no problem for PAK-MOR.



At commercial pick-ups, large bulky cartons load easily in PAK-MOR's unlimited loading area.

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A shack-like house blotted the beautiful San Gabriel Mission.

A firetrap claimed three lives and renewal interest perked up.

Do-It-Yourself Urban Renewal

A bad fire stimulates a San Gabriel slum clearance program

By WM. J. PROBERT
Chief Administrative Officer
San Gabriel, Calif.

ON May 14, 1956 the San Gabriel Fire Department received a call that a house was on fire. Two minutes later the first fire company arrived. Before it came, however, a mother and two children had been trapped in the house and lost their lives. The father escaped with third degree burns, saved by a neighbor who pulled him through a side window.

A throw rug, kicked or pushed over the floor furnace, undoubtedly started the fire. But this certainly was not the reason why the house burned to the ground in a matter of several minutes, snuffing out three human lives whose bodies were burned beyond identity. The house was a firetrap that should not be tolerated in San Gabriel. So the City Council directed the writer, as Chief Administrative Officer, and its Fire, Building, and Health Departments to consolidate their time and organize an all-out program called "Operation Cleanup."

Program Objectives

This program will rid San Gabriel of "all buildings or structures which are structurally unsafe and not provided with adequate egress, or which constitute a fire hazard, or are otherwise dangerous to human life, or which in relation to existing use constitute a hazard to safety and health, or public welfare, by reason of inadequate maintenance, dilapidation, obsolescence, or abandonment." (Section 203 of the Uniform Building Code).

The program requires a different philosophy or approach toward firetrap clearance. We stopped requesting the landowner to merely renovate his property. Instead, we started persuading him that not only would the city benefit if he demolished the structure and constructed a new one but he would too.

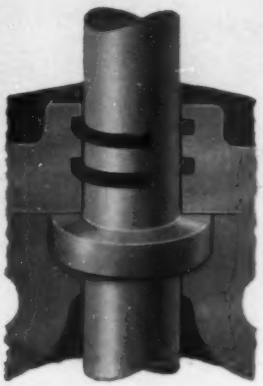
Land in San Gabriel is expensive; frequently the lot has a value much higher than the structure. When the owners see this, they recognize that it would be financially advantageous to demolish the old structure and construct a new unit which will increase the annual return on their investments.

San Gabriel uses various laws to

Today, with the firetrap gone, the vicinity takes on another type of appearance.

Here's How KENNEDY'S A.W.W.A. Valves Give You Longer, Low Cost Service . . .

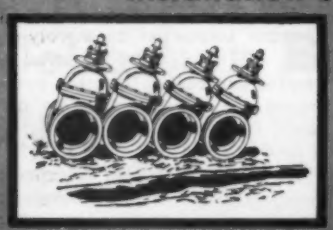
O-RINGS provide excellent seal, preventing any binding of the stem and resulting in very easy valve operation.



Mechanical joint ends save time and labor on installation.

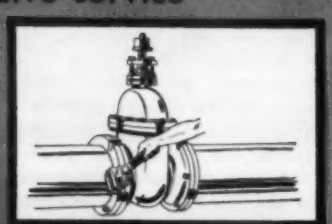
Fig. 571
Inside screw
Non-Rising stem
Mechanical Joint Ends

Installation suggestions for better valve service



Prior to installation on the job, valves should be kept tightly closed and covered to prevent foreign matter such as sand and grit from damaging seat faces.

Clean pipe thoroughly before installing valves since mill scale, dirt and chips will cut valve seats. Install A.W.W.A. valves in closed position.



When tightening bolts of flanged valves, install bolts at 180° and tighten each bolt at opposite sides of the diameter a little at a time instead of tightening one fully, then moving to next. This prevents undue stress and distortion.

These valves, designed for use in municipal water works systems, conform to A.W.W.A. specifications. While A.W.W.A. specifications cover only bell end and flanged non-rising-stem valves, the KENNEDY line of A.W.W.A. standard gate valves also includes outside-screw-and-yoke valves and all regular pipe end connections.

In KENNEDY'S Hook-and-Wedge type disc mechanism, sticking or locking is prevented because one disc is released before the other. When valve is closing, the discs bearing the wedges and hooks descend until the port opening is completely covered. In final downward movement of the discs, the wedges act against correspondingly inclined surfaces in the backs of the discs so as to spread the discs apart and force them tightly against the seats. The operation is perfect with either disc toward the pressure.

• See for yourself how KENNEDY A. W. W. A. Valves can save you money. Get complete details in Bulletin 561 -- WRITE TODAY !

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enforce its "Operation Cleanup" program. The primary enforcement tool is Section 203 of the Uniform Building Code. This section generally specifies what constitutes an unsafe building and that "all such unsafe buildings are hereby declared to be public nuisances and shall be abated by repair, rehabilitation, demolition, or removal." It further elaborates on the procedure for alleviating the conditions making a structure unsafe. The Building Official shall give written notice to the owner of the building, setting forth the defects and the improvements to be done. All work must be commenced in 48 hours and completed in 90 days, unless otherwise stipulated by the Building Official. In addition, the notice may require that the structure be vacated for occupancy and not reoccupied until the required repairs and improvements are completed and approved by the Building Official. If the owner of the structure fails to comply with the notice to repair or demolish the structure, the City Council may then order the owner prosecuted as a violator of the provisions of this Code and may order the Building Official to proceed with the work specified in the notice. A statement of the cost of the work is then transmitted to the City Council which is paid out of the City Treasury and levied as a special assessment against the property.

State Code

The Health and Safety Code of the State of California is another useful tool for enforcing this program. Sections 16054, 17581 and 17800 through 17830 are used. The most important section in this Code for "Operation Cleanup" is 17821. This section is similar to Section 203 of the Uniform Building Code in that it defines a nuisance and stipulates the procedures to be followed in abating such a nuisance. The difference between the two sections is that the Health and Safety Code is quite naturally related to the health of the occupants and the Building Code to the construction of the building. The Health Officer will enforce the provisions of the Health and Safety Code. The Building Official will enforce the Building Code.

Other Ordinances

In addition to the aforementioned codes, the city uses various ordinances as supplementary aids. Most of these ordinances relate to the land surrounding the structure itself. Although most ordinances are rather specific and restrictive, section 19.40 is quite broad and comprehensive. It reads as follows:

> Every owner, lessee, tenant, agent or occupant shall keep his yard or premises in a clean and wholesome condition, and no owner, lessee, agent, tenant or occupant shall allow or permit any accumulation of garbage, manure, offal, rubbish, stagnant water or any filthy liquid or substance or anything that is or may become putrid or offensive to be or remain upon his yard, lot or premises. (Ord. No. 10, Par. 19).

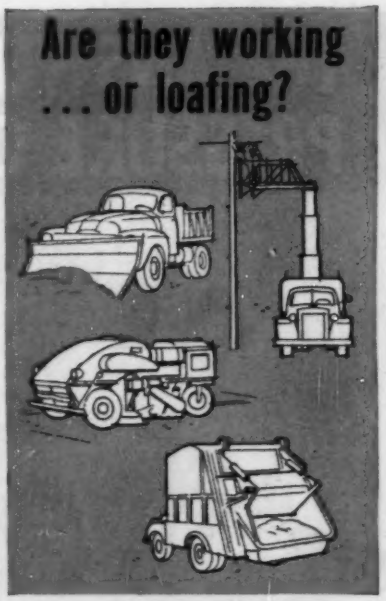
No greater impetus can be given to any program than the realization of human suffering and the loss of human lives. Remembering the tragedy of May 14, the Fire, Building, and Health Departments started researching the various codes and ordinances. By August they had gathered enough information to consider themselves well informed of the problem. They established the date September 1, to start the program. Oftentimes the expectations of a project as broad and involved as this far exceed the results. However, this has not been the case in San Gabriel. On the contrary, the results far surpass all expectations.

San Gabriel has made a record that would make any City Council and City Administrator extremely jubilant. In fourteen months, from September 1, 1956 to October 31, 1957, a total of 26 structures or buildings have been totally demolished. An additional three have been brought up to standard. As of November 1, 1957, there are 33 which are in the processing stage, most of which will be demolished. This is quite a startling record, but it becomes even more impressive when it is remembered that the demolished structures will be replaced with new and modern buildings all financed by private enterprise.

Program's Success

To further show the success of this program, not one of the 29 landowners was brought before the City Council as a violator. In no instance was the city forced to have the work done itself. All decisions between the city and the landowner were reached amicably.

San Gabriel has instigated a new approach to demolishing structures. Instead of requesting the owner to pay someone to demolish the building the Fire Chief will ask the owner if he might use the structure as a means of drill exercises for his



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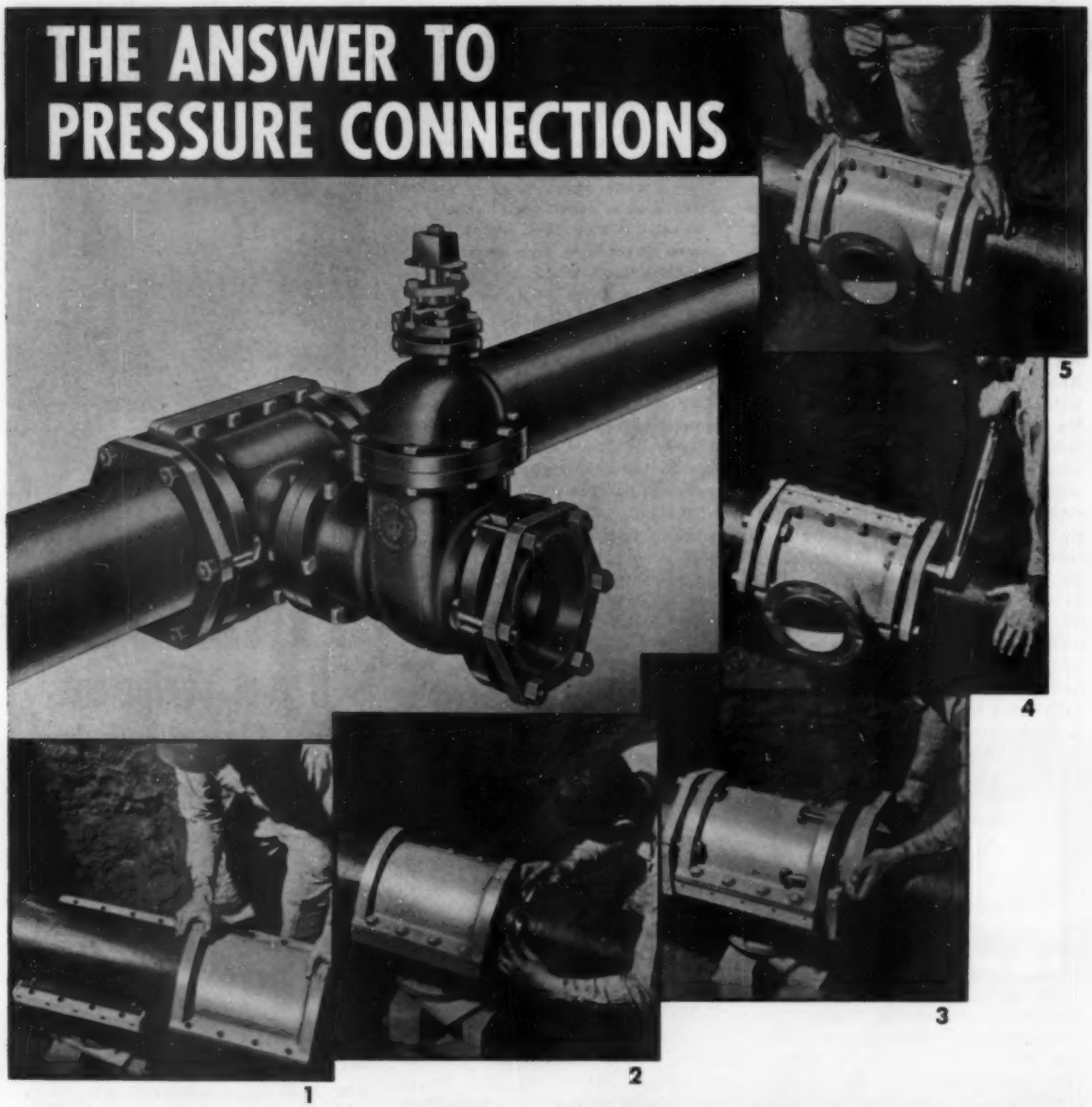
THE ANSWER TO PRESSURE CONNECTIONS



SMITH MECHANICAL JOINT TAPPING SLEEVES AND VALVES

Installing Smith Mechanical Joint Tapping Sleeves and Valves is the up-to-date way to make connections, sizes 2″ and larger under pressure. Installation can be speedily completed in any weather, even in wet excavations. The only tools required are two wrenches. Here's how: (1) Clean pipe — position and bolt sleeve halves on pipe. (2) Position and press gaskets into sleeve ends until evenly seated. (3) Attach split follower rings and hand tighten bolts and nuts. (4) Locate sleeve with outlet flange in desired position — tighten follower ring bolts and nuts. (5) Tighten side flange gasket compression screws — attach tapping valve. The installation is complete and ready for tapping.

56

FIRE HYDRANTS · VALVES · SINCE 1896

THE A.P. SMITH MFG. CO.

EAST ORANGE, NEW JERSEY

firemen. This approach involves no expenditure on the part of the owner. The Fire Department receives real and practical training. The citizens benefit by living in a cleaner and more attractive city, with the added assurance that a more adequate and well-trained fire department is at their disposal.

Knowing that neighboring fire departments can be of great assistance in an emergency, San Gabriel has invited surrounding departments to take advantage of this training opportunity.

Public Relations Helps

A program such as this requires a great deal of basic public relations work to inform the citizens of our intentions. The Fire Chief attacked this problem by preparing an "Operation Cleanup" film. This film is in color and lasts approximately 25 minutes. Its purpose is twofold: (1) as a public relations device to acquaint the public with the program and (2) as a training tool to teach the firemen the "dos and don'ts" of fire fighting. The film has been shown to approximately 4,000 local school children. It begins by showing our two fire stations. It depicts the life of a fireman while on duty —how he cooks, eats, sleeps, and lives. It shows how an alarm is received—getting dressed, spotting the location on a map, and pinpointing the closest fire hydrants. The film then gets into the burning of two substandard homes. It very adequately shows how the firemen are able to work the homes, what techniques they employ, and how they are able to protect surrounding trees and buildings. This movie has been well received. It has proved to be a workable tool for public relations and in-service training.

This has been the story of San Gabriel's answer to its cleanup problem—a problem that is facing most of the cities in America today.

Let the Azaleas Bloom

IT seems as if the citizens of Mobile, Ala. won't have to do without the azaleas on Spring Hill Avenue after all.

Recently the *Alabama Municipal Journal* reported that Mayor Joseph N. Langan felt that the City Traffic Commission's proposal to eliminate the azaleas would not yield enough additional road space for two extra traffic lanes unless the curbs were also cut back. So the azaleas stand.

Regulations for Private Swimming Pools

UNTIL the middle 1950's scarcely any city had specific ordinances regulating private swimming pools. However, in the past few years there have been a considerable number of new ordinances dealing with pools, the noise around them, and proper fences and lighting, reports the American Society of Planning Officials.

Today's ordinances, although differing in various respects, have many features in common: swimming pools are not permitted in front yards; they are required to be set back anywhere from 3 to 50 feet from property lines; and minimum distances are—varying from three to five feet—set for pumps and filters from abutting properties. The ordinances further regulate the construction, sanitation, drainage and maintenance of the pools. Fences are required to be 4 feet high for the most part and must have self-closing gates with self-latching devices attached. Some cities require that there be no other openings larger than a certain size—from 3 to 6 square inches.

STREETS AREN'T SECRET

At Oak Ridge, Tennessee, the United States Atomic Energy Commission conducts research into the mysteries of atomic energy. Necessarily, much of its hard-won scientific knowledge is secret. But not so the streets of this government-built community. These are clearly marked so all may see, with *FERRO* signs.

In many interesting locations you'll find *FERRO* signs . . . visible by day or by night; permanent porcelain enamel fused on finest steel. Fully embossed.

***FERRO* signs are manufactured by Ferro Enameling Company, only in its own factory. Processing, embossing and porcelain enameling are carefully and completely performed under one roof, to produce an entirely reliable and uniform sign.**

On any street, road or highway, *FERRO is the sign of good government.*

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There are centuries of difference between genuine *porcelain enamel* and "baked," "paint" or other substitute "enamels." *Genuine porcelain enamel* lasts for centuries; won't "weather," won't fade. Get the facts. Write for free illustrated leaflet and with complete details. TODAY, fill in the coupon, paste on a postcard and mail.

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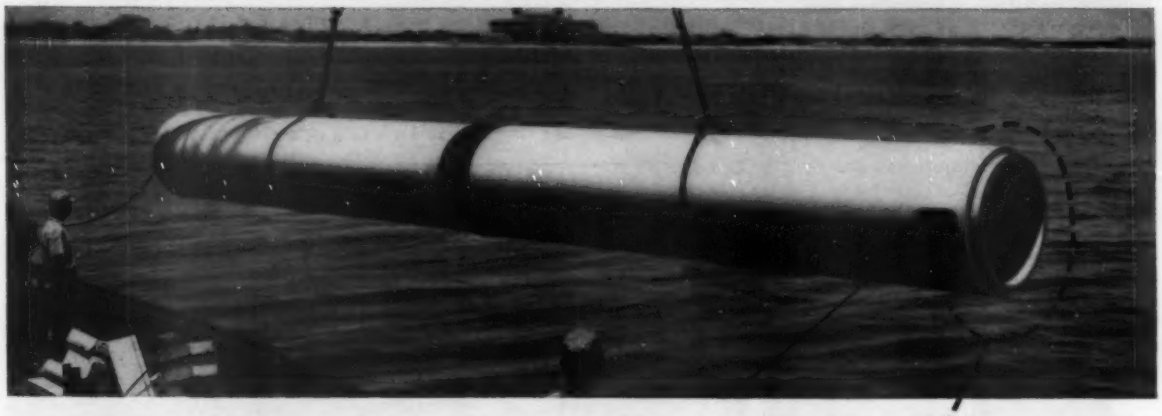

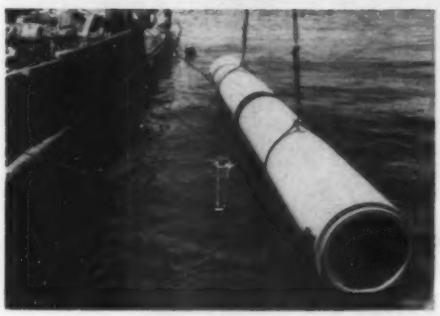

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Whether you want to keep water in or out—or both—American-Marietta long length concrete pipe with Amseal joints will do it better at less cost. In fact, the Engineer on the above job says, "The original design called for 24" diameter pipe of another type but 30" Amseal Subaqueous Pipe proved more economical."

The longer lengths enable a contractor to install 32 feet of pipe—often 64 feet—at a time. This means less handling and joint making . . . improved flow capacity through use of fewer joints.

The "pressure proven" rubber and steel Amseal joint provides a flexible but positive water-tight seal against costly infiltration or leakage. For underwater work subaqueous connections are provided to simplify installation. Write our technical staff for assistance with your pipe problems.

Subaqueous ocean outfall line at Palm Beach, Florida. Engineer: Norman C. Schmid & Assoc., Palm Beach. Contractor: Powell Bros. Co. Inc., Ft. Lauderdale.

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Director of Public Works James Fowler and City Manager Joseph W. Watson review complaints.

Complaints Become Bouquets

. . . when given the "Information Team" treatment at Hollywood, Fla.

By LOUIS MALLEY
Public Information Office
Hollywood, Fla.

COMPLAINTS are serious City Hall business here. If anyone here wants a quick interview with City Manager J. W. Watson, all he has to do is label a citizen inquiry as "crank."

This year the city redesigned its entire complaint mechanism. The new procedure uses two simple fundamentals:

(a) It employs an "Information Team" intensively trained to receive and process complaints quickly and courteously.

(b) It utilizes a simple form devised to record the complaint, notify the citizen of its correction and act as a follow-up and file form. It also contains sufficient information to provide the city manager with a yearly survey indicating how the city is functioning.

The Information Team has three principal members: The switchboard operator, who provides the complainant his first contact with his city; the secretary in the office of Public Works; and the secretary in the city manager's office.

The switchboard operator does more than shuttle along the complaints. She also has been supplied with a library of general information books pertaining not only to city, but county, state, and federal

Heart of the complaint mechanism is the well-informed switchboard operator. She handles calls on general information and routes all others to the proper office.

Plastic Coating Stops Costly Condensation Drip and Rust

THE COSTLY PROBLEM caused by dripping from this sweating pipe was permanently solved with one easy and inexpensive application of NoDrip Plastic Coating. Sweating pipes, ceilings, air ducts and other metal equipment are also completely protected against rust and corrosion by low cost NoDrip.

NoDrip Plastic Coating acts immediately to insulate and protect. One application adds many years of service life to metal equipment. NoDrip is also resistant to acid, alkali and brine...protects concrete, brick, plaster, tile wood or composition surfaces.

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Available at leading plumbing and mill supply houses

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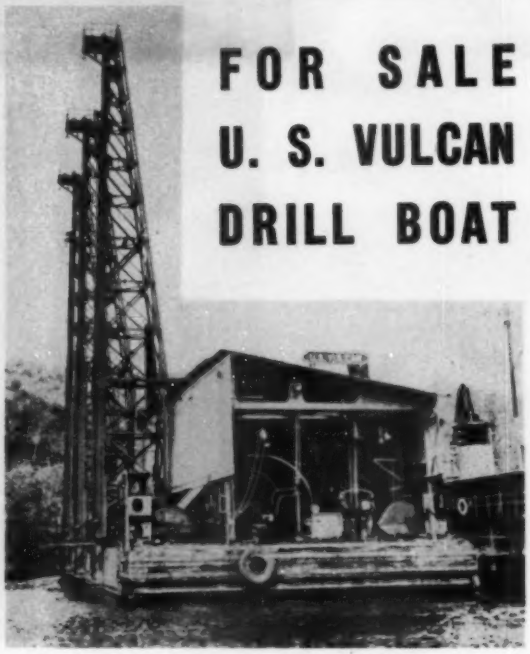


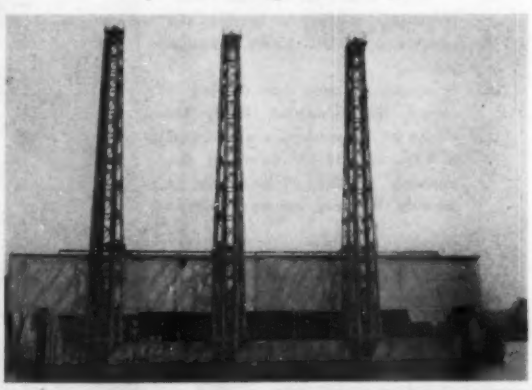
FOR SALE U. S. VULCAN DRILL BOAT

Sealed bids will be received in the office of Chief, Procurement Division, Panama Canal Co., 21 West St., New York 6, N. Y., until 10:30 A. M., EST June 27, 1958 and will at that time be publicly opened for the purchase of one drillboat, U. S. VULCAN offered for sale by Panama Canal Company.

This ship was designed for underwriter drilling and mining operations. Length 151 feet, beam 52 feet, depth 13 feet, displacement 1,430 long tons. Has four IR model 8XVO diesel engine air compressors, three drill towers, pneumatically operated, 94 feet high, 70,000 pounds each. Can drill 5 inch holes to depth 75 feet below water line. Superstructure is sound, finish is fair. Last drydocked June, 1949 it is considered seaworthy.

Additional information, bid forms, will be available at:

Panama Canal Company
21 West Street New York 6, N. Y.
Telephone Bowling Green 9-5380



matters. Thus, she can answer general inquiries quickly. These range from "When do the Lions meet?" to "Who was the tenth President of the United States?" This, in itself, relieves the interdepartmental communications system of a tremendous work-load.

To make the first contact more effective, the switchboard operator received complete training, orienting her on all city operations, scope of responsibility, and the policy of every department and section within the city government. Thus, she can send a message to the right place immediately. This undoubtedly is the most important single aspect of the entire method.

Public Works Secretary

The second person contacted, as mentioned previously, is the secretary in the Office of Public Works. Our studies show that almost 80% of the complaints coming to City Hall relate in some way to this department. The third point of contact, the secretary in the city manager's office, receives matters of policy or urgency.

The secretary in the Public Works Department processes her complaints on a new form. It is a simple pad arrangement using sheets of white, pink, and yellow paper in repeating series. The paper is especially prepared so that the secretary can write the information down and obtain three copies simultaneously without the use of carbon paper or other time-consuming methods of duplication.

At the completion of the telephone call, the secretary places two copies in the pick-up box for departmental heads. The third copy goes into file. Complaints are numbered consecutively so that none can be destroyed.

Department Heads

Each department head must pick up his communications twice daily. The most effective time is in the morning between 9:00 and 10:00 a.m. This allows scheduling of crews and equipment to handle the large share of morning complaints the same day. The second pick-up is made in the late afternoon so that urgent ones can still be corrected that day.

When the complaint is investigated by the department head, he fills out the portion of the blank, "Deposition of Complaint." The treated paper makes it necessary to fill it out only once to obtain two copies. One is left with the complainee and contains an expression of appreciation.

The third page in the complaint form is returned to the secretary of the Public Works office, who immediately dates it and removes her copy from the file and destroys it. The secretary then files the completed form alphabetically for future reference.

Complaints Reviewed

Once a week, the Director of Public Works reviews complaints which have not been completed. He calls these to the attention of the department head by memo or conference to learn why they have not been corrected. Once a month the Director of Public Works turns his file over to the City Manager for further review. Once a year, the Information Secretary tabulates the complaints and produces a survey to show:

Department heads collect complaints twice a day, morning and afternoon.

- time consumed in handling complaints
- those departments which carry the greatest complaint loads.
- the number of valid complaints
- the number corrected
- most important, the cause of complaints

The new system has half-reduced the time required to receive and process complaints. Aside from the important factor of money saved it has uncovered other interesting aspects of our city.

One Out of Ten Calls

For example, one out of every ten families in the city has occasion to call City Hall and ask for information or express discontent. This, in itself, is one of the most effective ways of getting a personal contact with the public and showing the efficiency of city personnel and service. A complainee who receives prompt consideration is turned from a critic into an admiring friend.

It also allows us to locate areas where complaints dominate and thereby assist in planning future budgets that will correct the basic problems. Last year, 80% of the complaints originated in three of the seven sections of the city.

It furthermore shows the departments receiving the complaints. Last year, they ran as follows:

Department	Percentage
Street	54
Contract construction	16
Sanitation	10
Parks	9
Mosquito	3
Beach park	3
Building	2
Lot filling	1
Water distribution	1
Miscellaneous	1

Contract construction refers to projects such as sanitary sewers, water lines, and other projects. We transmit the bulk of these to the consulting engineer who must act as department head and provide the correction.

Seasonable Complaints

The system shows the seasonableness of the complaints, and thus gives department heads an opportunity to time their schedules. Last year, they varied as follows:

Season	Percentage
January-March	25
April-June	10
July-September	25
October-December	40

It has enabled us to scotch the old bromide that only cranks complain. Last year, the department heads considered 96% of the complaints thoroughly valid. Of all the complaints received, less than half of 1% were unreasonable; less than 2% were contrary to city policy, or required formal citizen petition; and roughly 2% were under the jurisdiction of the state, county, or other non-city agencies.

We were able, last year, to correct 90% of the complaints. Nearly two-thirds were satisfied on the first call, and over one-quarter, on the second. Approximately 62 citizens had to be told that they had a valid problem that we could not correct because

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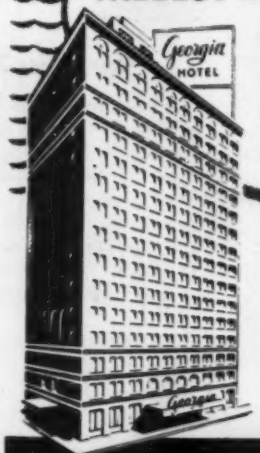

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of lack of money in the maintenance budget. The largest part pertained to requests for street and alley improvements and more adequate drainage.

Better Information to Public

Finally, it uncovered important areas where we need to inform the public more thoroughly about what the city can do. For example, the average citizen does not know the procedure behind the Special Assessment policy of the city; and does not realize that the city cannot improve private property. In general, he is unaware of the limitations on the city's authority.

He does not yet know the regulations governing the placing of trash for most efficient collection; he has not comprehended the magnitude of the drainage problem that the city faces; nor the difficulty of maintaining an effective pest-control program.

Public relations-wise, the impact on the citizen of an efficiently handled complaint cannot be overestimated. There is perhaps no more personal way for a city to impress its citizens with its efficiency than by a speedy answer to a justified complaint. The motto of the city's Information Team is, "Let's turn a complaining citizen into an admiring friend."

325 European Cities Use Council-Manager Plan

COUNCIL-MANAGER Government in Europe closely resembles the council-manager system of government as practiced in North America. It may be found in 325 municipalities of five West European countries—Finland, West Germany (two states), Ireland, Norway, and Sweden. By far, the largest number of council-manager governments are located in the two states of West Germany.

The administrator in these 325 municipalities is usually given the title of municipal manager. He is appointed by the local council and is a professional career man. As part of his job, he prepares the agenda for council meetings; attends these meetings, in many instances participating in council discussions and making recommendations; carries out the decisions of the council; and he either directly appoints the personnel or makes recommendations towards their appointment. The municipal manager's other functions are the preparation of the budget; overall supervision of municipal administration; general supervision and direction of the affairs of the municipality, either directly or through an administrative board.

Counties are required to have managers in Ireland, West Germany (two states), and Sweden. Their activities and functions are similar to those of the municipal council-managers. All five countries usually require their large towns and cities to have the council-manager form of government. In those municipalities where its adoption is optional, once the plan is adopted, it is made very difficult for the cities to abolish it.

In West Germany, the council-manager system of government is somewhat different than in the rest of Western Europe. In the states of Lower Saxony and North Rhine Westphalia, where it is in effect, the council-manager form of government is a combination of the British town-clerk system and the American council-manager form.

A pamphlet giving a directory of European council-manager governments can be obtained from the International City Managers' Association, 1313 East 60th Street, Chicago 37, Ill. Price, $1.

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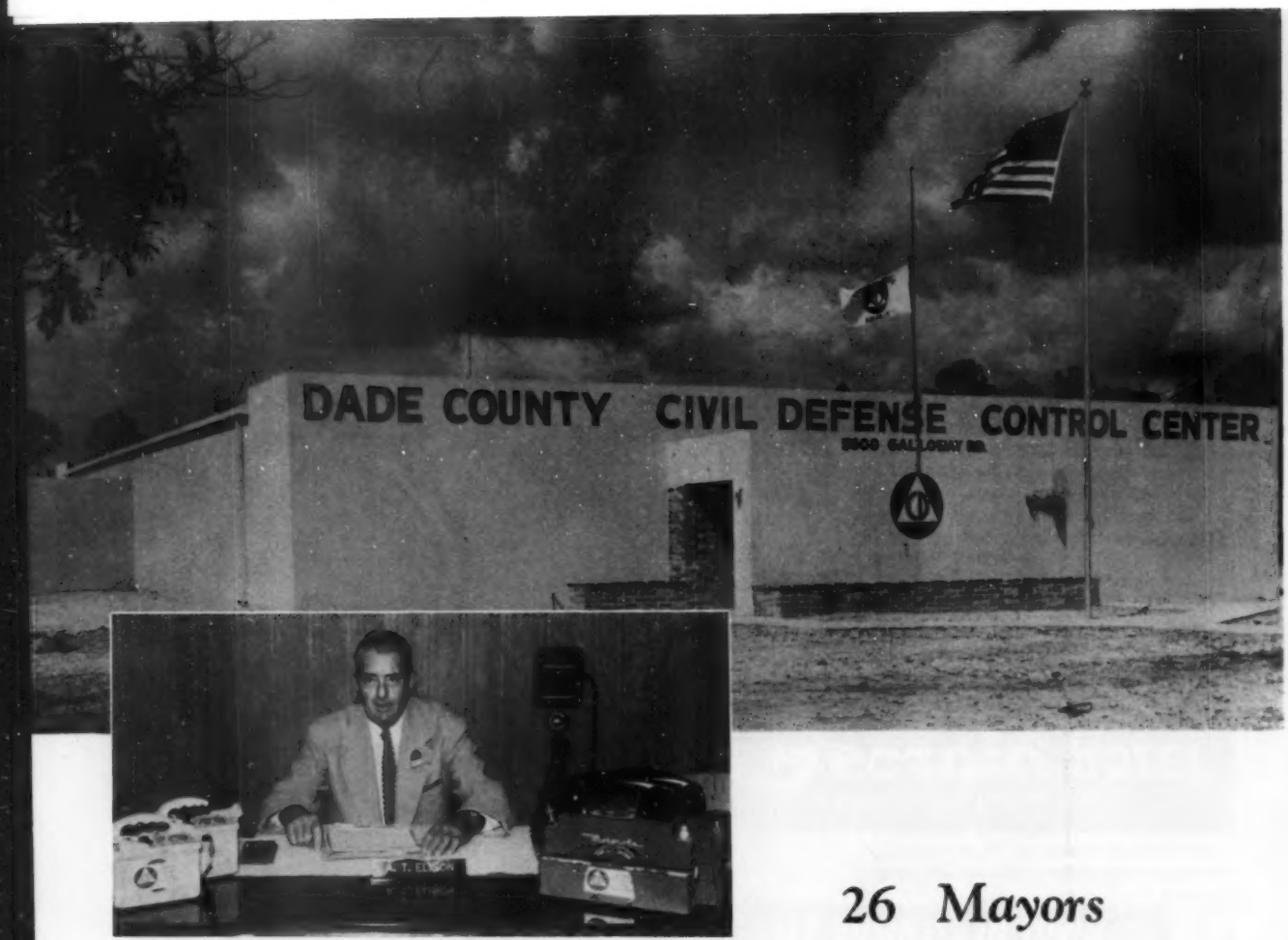


26 Mayors

Dade County, Fla., shows the kind of progress produced when the government heads of adjoining municipalities work together

By A. T. ELLISON
Executive Manager
Dade County Civil Defense

WHEN Civil Defense was reinstituted in 1950, the mayors of the 26 municipalities in Dade County, Fla., realized the value of maintaining an effective program in their area—as a sort of insurance against enemy attack. At an early meeting they discussed the best method of administering their local program.

They knew that to maintain an adequately trained and prepared CD unit took a great deal of money and people. This was especially true when each city was responsible for its own training and facilities. Civil Defense centers in each town also posed the problem of adequate coordination and of keeping each unit at the same stage of preparedness.

In order to best meet these requirements, the mayors decided to establish one center, with responsibility for the county-wide Civil Defense Program. Under this system, they reasoned, qualified people could be retained to supervise the program and, at the same time, central control would insure efficient coordination—all with the most efficient use of tax dollars.

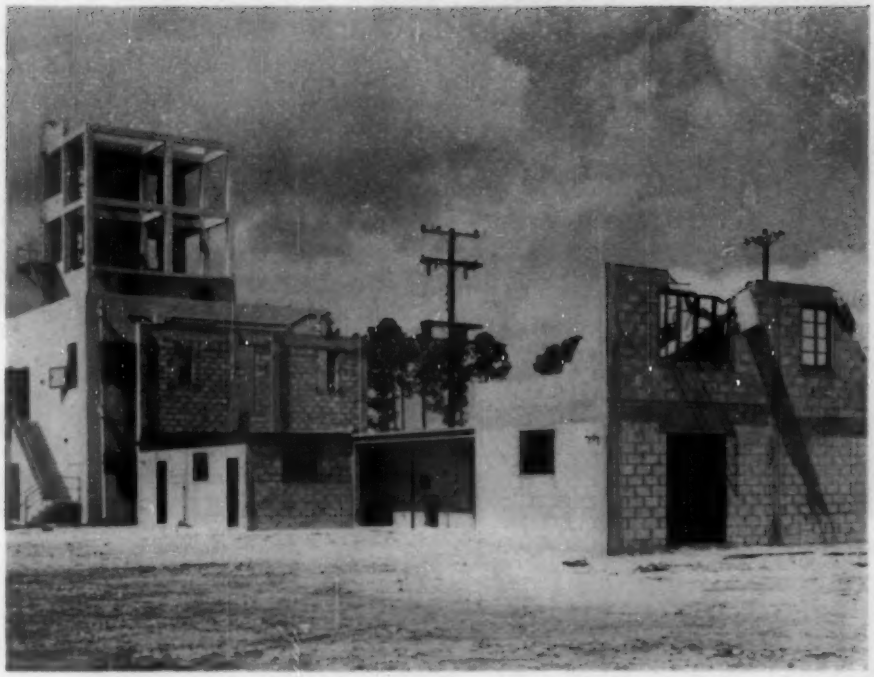
This early decision was the first step toward the southern Florida county's present Civil Defense program, which ranks as one of the most highly developed in the country.

Control Center

Nerve-center of the Dade County Civil Defense program is its modern, reinforced-concrete control center, located in suburban Miami. The recently-completed building is the culmination of the county's efforts to adequately prepare itself for enemy attack, and contains all the facilities to combat the effects of any natural or man-made emergency.

Dedicated December 14, 1956, the $186,000 center was built with the assistance of the Federal Civil Defense Administration, the national body with jurisdiction over all CD

Left:
Nerve-center of Florida's Dade County Civil Defense program is this modern, reinforced-concrete control center. Direct managerial control of the county Control Center is exercised by A. T. Ellison (insert), the unit's executive manager.



Right:
Adjoining the Dade County Civil Defense Control Center are the rescue training facilities of the City of Miami. Built to represent buildings in various stages of bomb damage, these training facilities afford realistic conditions for training of CD volunteers.

Establish Metropolitan Civil Defense Center

programs. Buildings costs for the structure were split between the county and federal governments, under provisions of Public Law 920, passed by Congress in 1950, with the local money coming from the county's general fund.

The new center is located on a 10-acre plot, approximately 12 miles southwest of metropolitan Miami. The structure's design and functionality reflect the rigid standards it was required to meet in qualifying for federal funds.

The building is 80 x 110 feet, and contains nearly 7,000,000 pounds of reinforced concrete. Resistance to explosion damage is afforded by 2-foot-thick roof and walls. The weight of the roof alone is in excess of 3,000,000 pounds. Over 90 tons of reinforcing steel were used in providing the building additional strength. Added security is provided by three blast walls located in front of the main entrance, and 800-pound laminated steel doors at each entrance.

The main area of the building is the Control Room, from which the county's civil defense activity would be directed in the event of emergency. Equipped with magnetic map boards, chief-of-service tables, and radio receivers and transmitters, the room is ready for emergency duty at all times. When not in use for operating purposes, the control room can be converted to classroom space in implementing the center's active training program.

Special Features

The rear of the building contains a decontamination chamber, equipped with facilities for processing persons exposed to radio-active material.

A fully-equipped kitchen is also incorporated into the building, and is stocked with emergency food supplies.

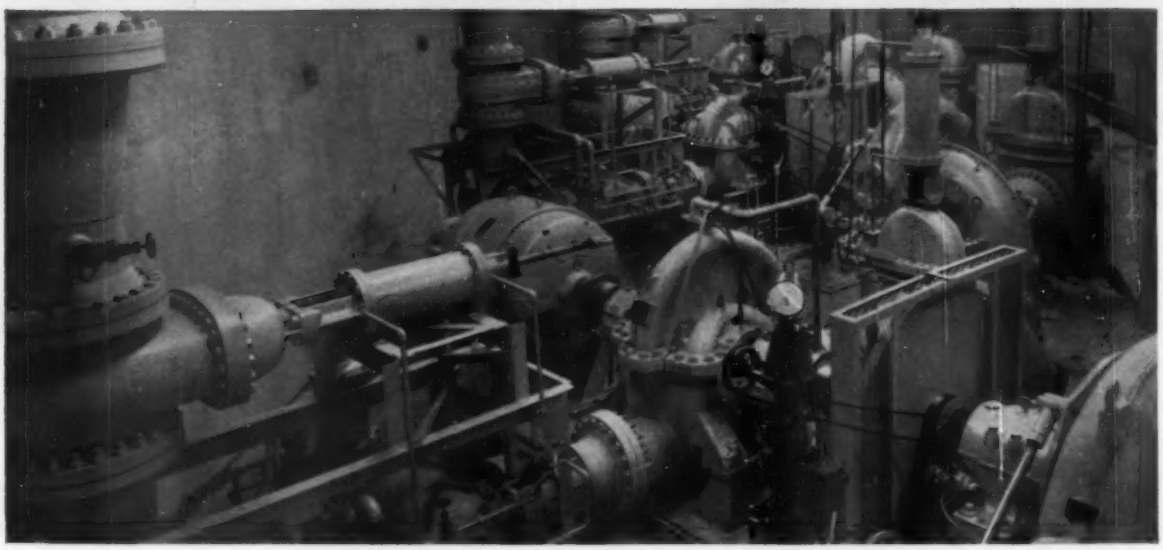
In addition, the center can provide sleeping accommodations for 21 people, made possible by folding metal bunks mounted on the corridor walls.

An administrative and training office in the center provides working space for staff personnel and volunteer workers in performing all administrative work connected with the unit's operation and training program.

The building also has a 20-ton air-conditioning unit, with filters especially designed by the U. S. Army Chemical Corps to combat Beta Gamma rays resulting from atomic fallout. Water for these units is supplied by two 3-inch wells sunk to a depth of 60 feet, with discharge water being pumped into three 4-inch wells of 40-foot depth.

Since commercial power failures are common during time of emergency, the center also has installed a diesel-powered electric set for stand-by power. Consisting of a Caterpillar D337 (Series F) Diesel Engine, and a 120/208-volt, 3-phase, 50-cycle A.C. generator, the electric set automatically supplies full power to the control center within seconds after commercial power fails.

A mobile field hospital, housed on



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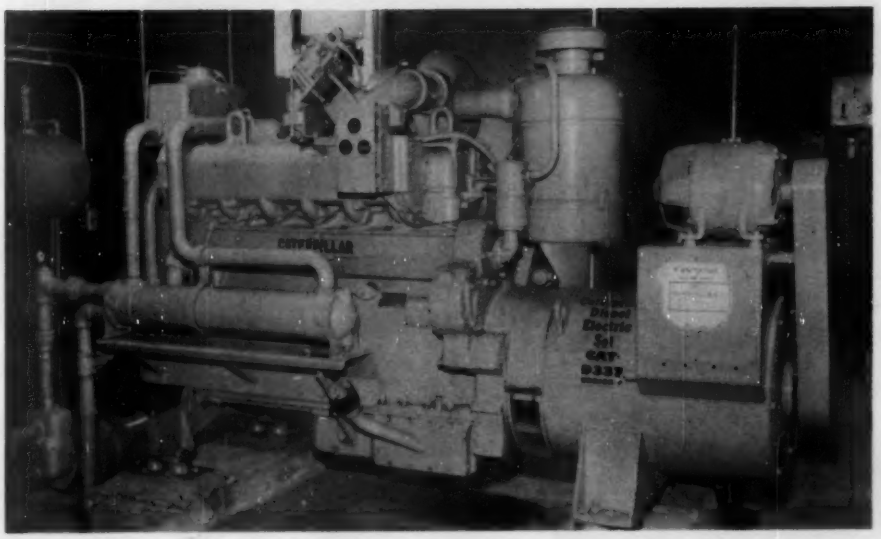


As protection against the loss of commercial power during civil emergencies, the Dade County Civil Defense Group has installed this diesel-powered electric generating set. The stand-by unit automatically supplies full power to the Center within seconds after commercial power failure.

a semi-trailer unit, is also part of the center's equipment, and is equipped to establish and maintain a 200-bed hospital in any disaster area within the county.

Rescue Training Center

Located on the same tract of land with the control center, are the rescue training facilities of the City of Miami. These training facilities were also constructed on a matching funds basis, at a cost of $70,000 to the City of Miami, with a like amount being supplied by the federal government. These facilities, consisting of concrete structures built to represent bomb-damaged buildings, are used by the CD control center as a part of its disaster training program. Through use of the simulated disaster area, civil defense trainees are given realistic training in all aspects of emergency rescue techniques. The training site also includes a five-story fire-training tower for use by the Miami Fire Department, as well as the Civil Defense unit.

The quality of Dade County's well-planned Civil Defense function has been reflected by a steadily increased civic interest. The modern facilities of the unit have attracted an increasingly larger number of volunteers into the various training programs.

Under the direction of J. N. Lummus, Jr., Dade County CD director, and A. T. Elison, executive manager, over 20,000 volunteers now stand ready for CD work in time of emergency. Six thousand of these have completed one or more of the various training programs conducted by the unit's ten full-time employees, aided by professional personnel, such as doctors, policemen, firemen, etc., who volunteer in teaching specialized courses on a part-time basis. At the present time, another 3,000 civilian volunteers are in the process of finishing courses dealing with such diverse subjects as disaster rescue work, fire-fighting, emergency police work, first aid, nursing, emergency communications, and the establishment and maintenance of emergency field hospitals.

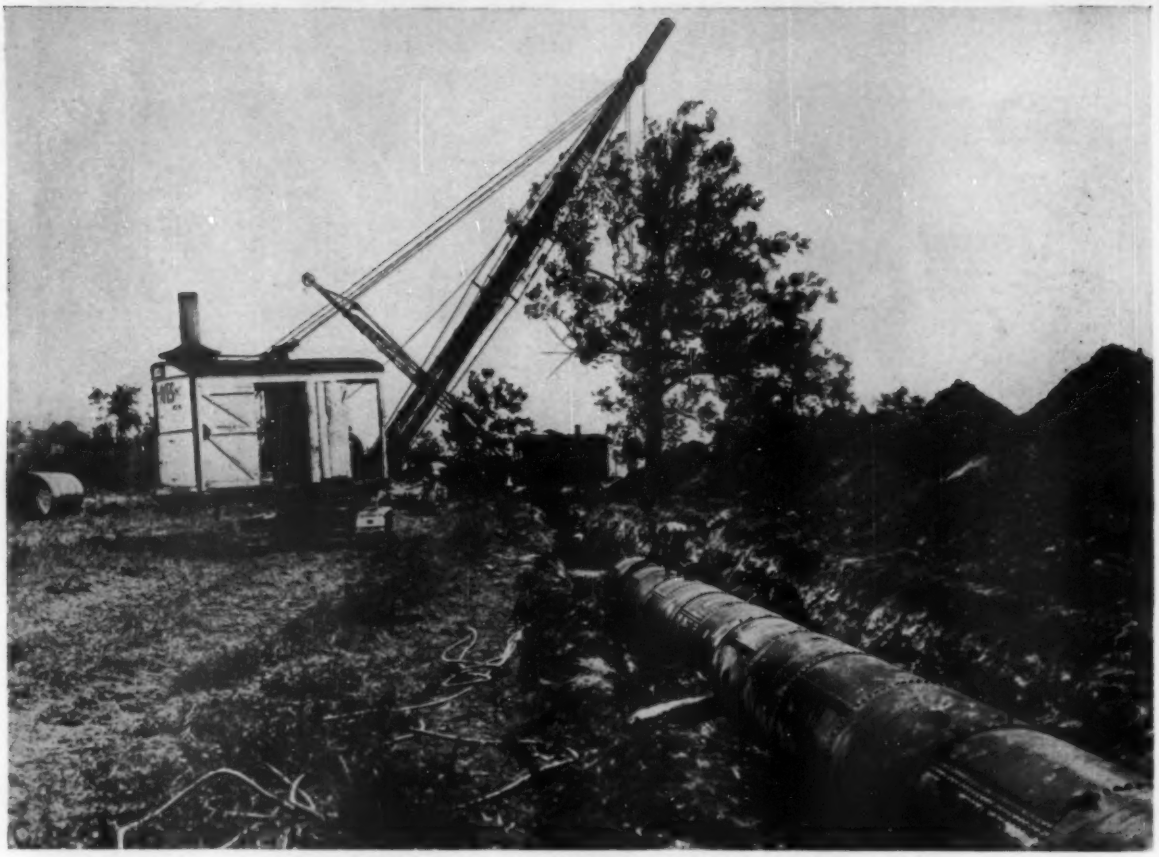
Civil Defense in Dade County the past six months has had a tremendous upsurge in demand for training, particularly from Women in Federation of Women's Clubs, social, civic and religious groups, and individuals.

The internal design of the Dade County Civil Defense Control Center reflects the functionality its builders planned for. Walls and roof are of 2-foot thick concrete, reinforced with 90 tons of steel. Emergency sleeping accommodations for 21 persons are provided by the folding bunks mounted on the corridor walls.

"Ham" Radio Operators Part of Network

Approximately 350 "ham" radio operators in the Dade County area are part of the unit's disaster communications network, and are in readiness to support Civil Defense whenever needed.

The decision made by 26 mayors at that first meeting in 1950 has proved a practical one in insuring that their county is adequately prepared—just in case.



Installing riveted steel pipe in 1925 near St. Louis' Stacy Park Reservoir.

Big steel mains still going strong in St. Louis

How long will large-diameter steel mains give satisfactory service? Let's look at an example in the city of St. Louis, where many miles of steel pipe have been installed.

Back in the mid-twenties the city developed a badly needed second source of water, at Howard Bend on the Missouri River. The project included installation of a 60-in. ID riveted steel main, nine miles from the filters to a new reservoir at Stacy Park, and eight miles further to the city mains. This line was completed in 1926.

When more transmission capacity was required, the city installed thirteen miles of welded steel pipe, again mostly 60 in. ID. This pipe was coal-tar lined by the spinning method, and coated. It was supplied by Bethlehem Steel in 40-ft lengths, and joined in the field by mechanical couplings. Tests made in 1935 indicated the leakage to be less than a gallon per diameter-inch per mile of pipe in 24 hours.

After more than 30 years of continuous service for much of this pipe, and well over 20 years for the rest, the Water Department reports that it has given uniformly satisfactory service with every indication of continuing to serve well for many years to come.

Laying 40-ft lengths of 60-in.-ID steel pipe in St. Louis in 1934. Note the smooth, shiny coal-tar lining.

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Philadelphia Gets Tough With Housing Violators

THE Philadelphia Law Department has filed its fourth judgment to collect $525 in unpaid fines from what the city terms its number one housing-and-fire scofflaw.

Deputy City Solicitor Leonard Ettinger entered the new judgment for $300 in Municipal Court against A. J. Riley in March. Mr. Riley had failed on four occasions to appear in magistrates' court to answer charges that his property violates fire and sanitation laws.

At the last hearing, Magistrate Elias Myers levied the stiffest fine he can impose, $300. Unpaid fines for three earlier nonappearances total $225. Mr. Riley's real estate holdings will be liened in the amount of the fines.

Fire and sanitation hazards at the Riley home, according to the Philadelphia Department of Licenses & Inspections, included heavy accumulations of baled paper and trash.

In the same filing, Solicitor Ettinger also entered judgments to collect $2,770 in fines and court costs from 42 other alleged housing violators, most of whom failed to appear in court.

The pipe laying crew follows behind the trencher in this Corpus Christi project.

Water Main Job "Beats the Seep"

RECENTLY, what could have been a tough, expensive water main job in the Corpus Christi, Texas area, ended up a routine installation.

Padre Island, a resort site, is flat and near sea level. Water seeps into the trenches shortly after being dug. Moreover, the salt water in the soil poses a corrosion problem to work of this nature.

When installing the 13,000-foot water system, the developers specified asbestos-cement pipe taking advantage of its light weight and resistance to corrosion.

The laying crew followed close behind the trench digger, placing Keasbey & Mattison asbestos-cement pipe and covering it before any appreciable amount of water could seep into the excavation.

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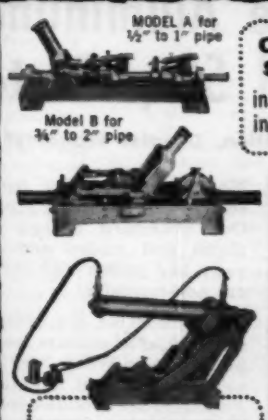

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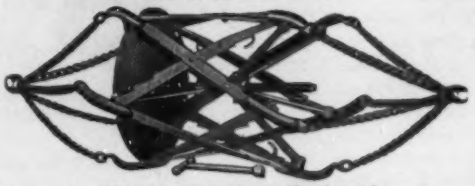

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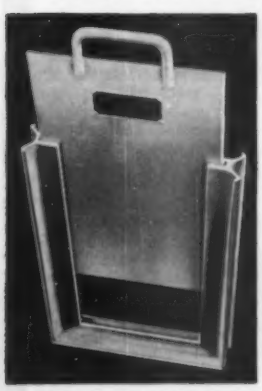

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Edited by NORMAN WILLIAMS, JR.

Zoning & Planning Notes

Criteria for Judicial Consideration of Zoning Cases — New Michigan Decision

MICHIGAN. *Robinson* v. *City of Bloomfield Hills*, 86 North Western (2d) 166 (Supreme (highest) Court, November 26, 1957).

In this case a 40-acre estate with a 20-room mansion was purchased by a doctor for use as a rest home, and a variance to permit such use was granted. Later on, the main building was proposed to be enlarged and remodelled, but a permit was then refused. Mandamus was brought to force issuance of a permit, but the Court held for the City.

In the opinion, it was held that a permit need not be granted on this record. The evidence showed that new and successful residential development had occurred nearby, and the Court concluded that the land was therefore suited for residential development. The existence of an office building nearby was held irrelevant, on the ground that:

> "These differences are bound to occur in any zoning plan. Somewhere one zone must end and another start."

However, the real significance of this opinion derives from its long discussion of the criteria which courts should use in passing on zoning cases:

> "We are brought, then, to the merits of the zoning scheme itself. In view of the frequency with which zoning cases are now appearing before this Court, we deem it expedient to point out again, in terms not susceptible of misconstruction, a fundamental principle: this Court does not sit as a super-zoning commission. Our laws have wisely committed to the people of a community themselves the determination of their municipal destiny, the degree to which the industrial may have precedence over the residential, and the areas carved out of each to be devoted to commercial pursuits. With the wisdom or lack of wisdom of the determination we are not concerned. The people of the community, through their appropriate legislative body, and not the courts, govern its growth and its life. Let us state the proposition as clearly as may be: It is not our function to approve the ordinance before us as to wisdom or desirability. For alleged abuses involving such factors the remedy is the ballot box, not the courts. We do not substitute our judgment for that of the legislative body charged with the duty and responsibility in the premises.
>
> "It is a necessary corollary of the above that the ordinance comes to us clothed with every presumption of validity, Hammond v. Bloomfield Hills Building Inspector, 331 Mich. 551, 50 N.W.2d 155, and it is the burden of the party attacking to prove affirmatively that the ordinance is an arbitrary and unreasonable restriction upon the owner's use of his property. Janesick v. City of Detroit, 337 Mich. 549, 60 N.W.2d 452. This is not to say, of course, that a local body may with impunity abrogate constitutional restraints. The point is that we require more than a debatable question. We require more than a fair difference of opinion. It must appear that the clause attacked is an arbitrary fiat, a whimsical ipse dixit, and that there is no room for a legitimate difference of opinion concerning its reasonableness. Such cases have in fact occurred (e.g., Bassey v. City of Huntington Woods, 344 Mich. 701,705.74 N.W.2d 897, where a lot zoned "residential" was subject as such to side-line restrictions, leaving only a 4-foot width to accommodate a 2-family dwelling) but they must in their very nature be extreme and the rule thus stated cannot justify the great numbers of cases reaching this court.
>
> "We have stressed, heretofore, in these zoning cases, the principle that each case must be judged on its own facts. Some confusion may have arisen from its frequent repetition. The statement is merely a truism in the law, applicable to all cases, from arbitration to zoning. It solves nothing. Most assuredly it does not imply that each zoning case stands alone, unrelated to and untouched by the others. To put it in another way, we have no "Woodward Avenue rule," no "traffic" rule as such, no "diminution in value" rule. All these are merely factors to be considered, pieces of the mosaic. The question always remains: As to this property, in this city, under this particular plan (wise or unwise though it may be), can it fairly be said there is not even a debatable question? If there is, we will not disturb.
>
> "Now as to the property before us and the ordinance before us: Much of the testimony taken went to the comparative value of the land if used for residential rather than commercial purposes. There is no doubt that its commercial value far exceeded its residential value.
>
> "If such a showing serves to invalidate an ordinance the efforts of our people to determine their living conditions will be hopeless. To avoid 'confiscation' in this sense (the obtaining of the highest dollar for one particular lot) will result in confiscation of far greater scope in property values in the municipality as a whole due to its inability to control its growth and development. It must be stressed that we are not, on this record (as we pointed out in Anderson v. City of Holland, 344 Mich. 706,710, 74 N.W.2d 894,-896), 'dealing with a situation in which the property involved is unsuitable for residential purposes and has little or no value if so restricted.' In such case the issue of confiscation is properly before us.
>
> "The trial court also held that the residential classification of plaintiff's properties, both the multiple dwelling area, 400 feet in depth along Woodward Avenue and the single dwelling area of substantial depth to its rear, was unreasonable and confiscatory because, as we read it, 'The day is since past when Woodward Avenue frontage anywhere between Pontiac and Detroit is logically compatible with residential use.' The developers of Cranbrook Manor would seem justified in their contrary belief. Contrariwise, also, seems to have been the opinion by one of plaintiff's experts, Thomas Elston, who testified that, at least from a traffic and noise standpoint, there would be no reason for saying that the rear part of the property fronting on Woodward Avenue was not an attractive residential property. Be that as it may, however, the wisdom of the ordinance, as we have observed, is not our concern. There are, obviously, those of our people to whom nearness to a great city, and ready access to transportation thereto, outweigh considerations of noise and the hazards of heavy traffic. It is not our function to debate the merits of their respective positions.
>
> "This court is not equipped to zone particular parcels of land. We do not see the land, we do not see the community, we do not grapple with its day-to-day problems. When we interpose with our writ and command, for example, that a certain tract on Woodward Avenue be turned over to commercial pursuits, the owners of the tract across the street are before us for similar dispensation the next day, and the areas north and south the day after. Thus we assume the zoning function. Their argument is cogent and not difficult to follow: What is sauce for the goose is sauce for the gander. So it is. But if the childish jingle is to be accorded the dignity of a legal axiom, if it is to replace, at least in these chambers, the deliberations of the legislative body, we would do well to re-examine our appellate function.
>
> "The function of the courts, with respect to these cases lies largely in two broad areas: (a) has the legislative body the authority to act? (b) have the requirements of administrative due process been observed with respect to adoption, inter-presentation, and administration of the ordinance in question? The first brings to us the validity and breadth of the delegation of power. The second brings to us the legality of its use, whether the ordinance was properly adopted, whether exercised as to all alike, regardless of local pressures and improper influences, and similar questions. These are the areas in which we may be presumed to have some degree of competence. But many of the cases coming to us involve merely the legislative judgment. They are the peripheral problems (should the line be drawn here, or there?) and the allegations of more advantageous use, with its corollary of 'confiscation' (the property is worth more if devoted to some other use). Save in the most extreme instances, involving clearly whimsical action, we will not disturb the legislative judgment. It is immaterial that we, as legislators, would have been wiser. We are acutely aware of the doctrine of the separation of powers. A legislative determination within its sphere of government is conclusive upon us.
>
> "Tested by these established principles it is clear beyond question that it lies within the competence of the City of Bloomfield Hills to plan its future growth and development, that its legislative body had authority to act, and that, so far as here questioned, the requirements of administrative and procedural due process have been observed (e.g., here there was no fatal defect in the observance of the requirement of a public hearing). Given these indispensable requirements, such factors as the relative values of competing uses, and the proximity of nonconforming uses, assume their rightful places as matters primarily for legislative concern, unless, as noted, we have patently a capricious and irrational invasion of property, the merits undebatable by reasonable men, the action indefensible to any save those whose minds have been made incandescent by partisan zeal or pursuit of gain. The prohibitory interposition of the courts upon this record, is not warranted."

Since the Michigan courts have been notoriously unsympathetic to zoning regulations, the strong line taken in this discussion is particularly significant. However, it should be noted that the decision was signed by four judges, and four other judges merely concurred in the result, presumably dissenting from the discussion in question.

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Zoning Briefs

California

BEES NOT DOMESTICATED ANIMALS. Owner of land in residential zone in which keeping of poultry, rabbits, chinchillas "and other domestic animals" was permitted desired to keep bees, claiming that they are domestic animals. Court ruled that bees never have been fully domesticated going back some fourteen hundred years to the Corpus Juris Civilis of Justinian to prove that fact, and said that bees could not be kept. People v. Kasold, 314 P.2d 241. (Appellate Department, Superior Court, Los Angeles County, July 22, 1957.)

Connecticut

BOARD MEMBERS INTERESTED IN RIVAL PROPERTY: ACTION INVALID. Denial of application for rezoning of 17-acre tract in residence zone for use as shopping center questioned because two members of Town Plan and Zoning Commission had various interests in another site and employee of Commission had made unfavorable report on application. Court held Commission's denial invalid. Mills v. Town Plan and Zoning Commission, 134 A.2d 250. (Supreme Court of Errors and Appeals, July 16, 1957.)

Indiana

WELFARE OF CHILDREN JUSTIFIES VARIANCE. Local building commission denied permission for high school to add to gymnasium because proposed addition would violate setback provision of ordinance. Courts reversed decision, pointing out that denial of permit would result in hardship to children of community that would outweigh any possible damage caused by violation of setback regulation. Board of Zoning Appeals v. School City of Mishawaka, 145 N.E.2d 302. (Appellate Court, Oct. 11, 1957.)

Kansas

TIME LIMIT FOR NONCONFORMING USE APPROVED. County zoning plan covering land within three miles of boundaries of Topeka provided that certain nonconforming uses be discontinued within two years. Operator of automobile wrecking yard challenged this requirement. Court held that, although two-year rule was harsh, it did not constitute unlawful discrimination and that wrecking yard must cease operations within required period. Spurgeon v. Board of Commissioners of Shawnee County, 317 P.2d 798. (Supreme Court, Nov. 9, 1957.)

Kentucky

USE OF BUILDING FOR AGRICULTURAL PURPOSES UPHELD. Neighbors brought suit to stop use of tobacco barn and stable. Tobacco barn was used for storage and processing of tobacco from two separate lots, on one of which structures stood, and smaller building had been used for stabling owner's mule, cow and pony but that use had been discontinued. Court held, that as ordinance provided that nothing in its terms should prohibit use for agriculture and also permitted gardening and general farming, owner could continue use of structures in connection with his tobacco operations. Southard v. Biddle, 305 S.W.2d 762. (Court of Appeals, Oct. 4, 1957.)

CHANGE TO PERMIT SHOPPING CENTER RULED SPOT ZONING. Zoning ordinance amended changing area from highest residential classification to neighborhood business to permit construction of shopping center. Owners of adjoining land challenged amendment. Court, in opinion which introduced Lady Macbeth and her "damned spot," ruled that change constituted spot zoning, was not part of comprehensive plan, and so was invalid. Mathis v. Hannan, 306 S.W.2d 278. (Court of Appeals, May 17, 1957: Rehearing Denied, Oct. 4, 1957.)

Louisiana

FACTORY NOISES AT NIGHT ENJOINED. Owner of house in residential zone across street from factory in industrial zone sought to enjoin factory from making excessive noises during night operations. Court, after saying that both parties were using their properties lawfully, held that "each must use his own property so as not to prevent reasonable use by the other," and ruled that the "screeching and grinding" noises emitted by the factory five nights a week should be enjoined. Ragusa v. American Metal Works, 97 So.2d 683. (Court of Appeals, Oct. 21, 1957: Rehearing Denied Nov. 15, 1957.)

Michigan

NEW ORDINANCE BARRING GAS STATION HELD VALID. Application to build gas station made when area was unzoned because new city had been created and had not yet passed its zoning ordinances although old village ordinances had expired. However owner had waived rights that might have been his because of delay and Court held new city's ordinance barring gas station was not unreasonable and so valid. It pointed out that appeal to Zoning Board of Appeals was still open. Highland Oil Corp. v. City of Lathrup Village, 85 N.W.2d 185. (Supreme Court, Oct. 7, 1957)

Missouri

ORDINANCE PROVIDES SUFFICIENT STANDARDS: SERVICE STATION PERMITTED. Mandamus sought to compel issuance of occupancy permit for gasoline station in commercial zone. Permit had been approved by Planning Commission and City Council but later Council denied permit. Court held that ordinance set up sufficient standards and that proposed filling station met those standards and construction should be permitted. State v. Guffey, 305 S.W.2d 552. (Supreme Court, Nov. 12, 1957.)

New Jersey

UPGRADING TO REQUIRE LARGER LOTS APPROVED. Upgrading of land in residence area requiring larger lots and longer frontage upheld by Court which pointed out that there were sound reasons for change and that substantial relevant factors justified action of local authorities. Bogert v. Washington Township, 135 A.2d 1. (Supreme Court, Oct. 7, 1957.)

DRY CLEANER'S PICKUP DEPOT BARRED FROM LARGE APARTMENT BUILDING. Room in basement of large apartment building leased for operation as pickup depot for dry cleaner who did actual work elsewhere. Permission to use room was denied by zoning authorities on ground that it constituted a business prohibited by zoning ordinance. Operator claimed that it was a convenience for tenants and a proper accessory use. Court held that it was not accessory to a multiple dwelling as it is not customarily incidental to the operation of an apartment house. Zahn v. Newark Board of Adjustment, 133 A.2d 358. (Superior Court, Appellate Division, June 24, 1957.)

New York

NEW YORK (Federal Courts)

EFFECTS OF ZONING CHANGE ADMISSIBLE AS EVIDENCE. In eminent domain proceedings Court ruled that exclusion of evidence showing enhancement of value of property resulting from change in zoning South of Boulevard had been improper as change may also have affected values of property North of Boulevard which was being taken by U. S. Government. United States v. 63.04 Acres of Land, 245 F. Rep. 140. (U. S. Court of Appeals, Second Circuit, June 3, 1957.)

CLERK NOT REQUIRED TO PUBLISH ORDINANCE FORTHWITH. Petition to compel City Clerk to publish zoning ordinance which had been passed by 3 to 2 vote subject to understanding that question of whether majority vote was sufficient should be referred to City Attorney. As a petition purporting to be signed by 20% of property owners affected had been filed, it was claimed that a four-fifths vote was necessary. Court held that Clerk was not required to publish ordinance forthwith and was acting properly in waiting for opinion from City Attorney. Glen Cove Shopping Center v. Sirouni, 166 N.Y.S.2d 17. (Supreme Court, Special Term, Nassau County, Sept. 12, 1957.)

Ohio

RESTAURANT DENIED ADDITIONAL PARKING SPACE IN RESIDENCE ZONE. Variance sought for parking lot in area zoned for single-family residences in order to provide additional parking space for nearby restaurant. Land directly across street was in multi-family residence zone which adjoined retail business zone in which restaurant was situated. Court ruled that even though additional parking space was desirable, it was not necessary, and so did not justify granting of variance. State v. Guion, 145 N.E.2d 144. (Court of Appeal, Cuyahoga County, Oct. 2, 1957.)

Pennsylvania

PROTEST AGAINST ZONING FILED TOO LATE. Zoning change permitting construction of office building and warehouse passed on May 29. Statute required that appeals must be filed within 30 days. Memorial Day holiday delayed sending out of notice of decision until June 1 and appeal was not filed until June 29. Court construed statute strictly and ruled that, despite delay in sending out notice, appeal was filed too late. Kuper v. Upper Merion Township, 134 A.2d 916. (Supreme Court, Sept. 30, 1957.)

SLAUGHTERING IN RESIDENCE ZONE ENJOINED AS NUISANCE. Grocery store in predominantly residential area which had begun slaughtering chickens in back room in 1940 had gradually expanded this phase of its business until cattle and swine were slaughtered on premises. When neighbors finally sought to enjoin slaughtering operation as nuisance, owners of store contended that long delay in bringing action constituted laches. Court held delay justified and issued injunction. Hostetter v. Sterner's Grocery, 134 A.2d 854. (Supreme Court, Sept. 30, 1957.)

Rhode Island

ZONING OFFICIALS USURPED FUNCTIONS OF CITY COUNCIL. Action brought to review decision of Zoning Board of Review which granted exception permitting garden-type apartment houses in single-family residence zone. Court ruled decision invalid because it constituted substantial change in boundaries and so usurped authority of City Council. Adams v. Zoning Board of Review, 135A.2d 357. (Supreme Court, Oct. 30, 1957.)

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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS—Charles S. Rhyne, General Counsel

Annexation—Election Not Required—Summary Annexation

In action by residents of area annexed by city to declare annexation by ordinance alone invalid, held, charter provision giving city council power to annex adjacent territory without an election was valid. *Forbes* v. *City of Houston*, 304 S.W.2d 542 (Tex. Civ. App., July 11, 1957)

Annexation of Fractional Lots Created By Boundary Lines Upheld—Summary Annexation

In action to invalidate detachment and annexation of fractional lot formed by boundary line of two adjacent cities, held, statute permitted attachment and annexation of such fractional lots by mutual resolution without holding election as in other annexation proceedings. *Benjamin* v. *City of Huntington Woods & Royal Oak*, 84 N.W.2d 789 (Mich., Sept. 4, 1957)

City Property—Conveyance of Does Not Include Title to Abutting Street

In action by grantee of city property under quit-claim deed erroneously conveying land to center of abutting street, held, deed did not extinguish rights of public in street and sidewalk though city never had acted formally to dedicate land as public highway. *Nikiel* v. *City of Buffalo*, 165 N.Y.S.2d 392 (N.Y. Sup. Ct., Erie Cty., July 16, 1957)

Contractors—Sewer Contractor Recovers for Additional Costs Resulting from Unexpectedly Encountering Quicksand—Impossibility of Performance

In action by sewer contractor against city to recover for excessive cost of constructing sewer caused by unexpectedly encountering quicksand and water where city through its consulting engineers had knowledge of unfavorable subsoil conditions, held, contractor could recover though bid required bidder to make own examination, stated that recorded borings were offered as evidence, and provided that bidder must assume entire responsibility for conclusions. *Valentini* v. *City of Adrian*, 79 N.W.2d 885 (Mich., Dec. 28, 1956)

Dance Hall Licensing Sustained As Regulatory Measure

In action to enjoin city from enforcing ordinance requiring license fee of $200 for operation of dance hall having 2,000 square feet or more of floor space, held, fee not so excessive or so clearly a revenue measure to establish that ordinance was tax rather than regulatory measure. *City of Amarillo* v. *Maddox*, 297 S.W.2d 750 (Tex. Civ. App., Dec. 17, 1956)

Initiative and Referendum—Tavern Fee Increase Sustained Since Ordinances Submitted to Referendum May Be Amended Without Election

In action by 39 tavern owners to restrain enforcement of 1947 ordinance increasing tavern license fee by amending earlier ordinance which had been approved by city council and then by referendum, held, referendum is power to veto rather than power to adopt so that statute requiring election as to all amendments referred to ordinances which had been adopted pursuant to initiative petition, not referendum. *Astrowsky* v. *City of Kewanee*, 139 N.E.2d 241 (Ill., Nov. 26, 1956)

License Tag Ordinance Held Constitutional—Revenue Incidental

In prosecution of motorist under ordinance requiring annual license fee on passenger vehicles using city streets, held, ordinance was valid exercise of police power and was regulatory, not revenue, measure. *City of Chattanooga* v. *Veatch*, 304 S.W.2d 326 (Tenn., June 7, 1957)

Parking Meters—Initiated Ordinance Against Meters Results in Denial of Recovery for Cost of Installation

In action by parking meter company that had installed meters under "trial lease agreement" where citizens of city had, after installation, adopted ordinance by initiative proceedings against parking meters, held, city not liable to company on contract for installation. *Duncan Parking Meter Corp.* v. *City of Gurdon*, 146 F. Supp. 280 (D. C. Ark., Nov. 23, 1956)

Policemen Personally Liable for Negligence in Operating Squad Car

In action by woman injured in intersection collision with Big Springs squad car answering routine radio call, held that defendant officer failed to exercise reasonable care by operating police car at excessive rate of speed and that policemen are not immune from liability for negligence in performing police functions. *Eubanks* v. *Wood*, 304 S.W.2d 567 (Tex. Civ. App., July 19, 1957)

Ports and Harbors—Condemnation For Federal Project Upheld

In action to expropriate servitude for waterway, held, Port Authority possessed power of condemnation and could exercise power to secure land for federal construction of gulf intercostal waterway under agreement requiring state to furnish lands and easements without cost to federal government. *Greater Baton Rouge Port Comm'n* v. *Morley*, 93 So.2d 912 (La., Feb. 25, 1957)

Sales Tax Applied to Printing of Appellate Brief

In action by attorney and printer against city over application of the New York City tax on retail sales of tangible personal property to printing and delivery of an appellate brief, held, transaction was taxable as it did not constitute rendition of personal services. *Ackerman* v. *City of New York*, 165 N.Y.S.2d 981 (N. Y. Sup. Ct., N. Y. City., July 17, 1957)

Sign Prohibition Ineffective As to Railroad

In prosecution of railroad for violating Village of Bronxville "Building Zone Ordinance" by affixing advertising signs to metal fence, held that such signs did not violate ordinance provision prohibiting use of signs not attached to buildings, those exceeding two feet in height, and those signs projecting more than two inches in business zone. *People* v. *New York Central R.R.*, 165 N.Y.S.2d 877 (N. Y., Westchester City. Ct., Dec. 18, 1956)

Taverns—Married Minors Barred

In prosecution of minor under ordinance prohibiting persons under 21 from being in places where beer sales were major portion of business, held, fact that defendant was married and that such marriage constituted statutory attainment of majority was no defense. *City of Des Moines* v. *Reisman*, 83 N.W.2d 197.

Taxation—Delinquencies—Use of Formula to Determine Upheld

In action by contractor contesting assessment for delinquent sales taxes covering three-year period based on examination of records for construction of two hospital buildings covering two months, held, finding that taxable sales represented 6.026% of gross amount of contract for hospital buildings could be used to determine delinquency for three years. *Thompson-Starrett Co.* v. *City of New York*, 165 N.Y.S.2d 554 (N. Y. Sup. Ct., N. Y. Cty., Apr. 30, 1956)

Taxation—Protest and Duress in Paying Unconstitutional Tax Lacking—Recovery Denied

In action to recover general business taxes paid under portion of city code later ruled unconstitutional as to taxpayers' interstate business, held that since payment was not under protest, duress of actual lien, or mutual mistake in fact, recovery would be denied despite statute abolishing distinction between mutual mistakes in fact and law. *Mercury Mach. Importing Corp.* v. *City of New York*, 165 N.Y.S.2d 517 (N. Y., July 3, 1957)

Zoning—Commercial Building In Residential Area Permitted

In action by owner of District of Columbia apartment house to force grant of exception to permit conversion to office building, held, there was a manifest abuse of discretion: where other owners had been allowed to convert or build commercial buildings; where there was no showing that plaintiff's conversion "would adversely affect present character and future development in area," and where there was no showing that other property would be less suited for residential purposes if exception were granted. *Hyman* v. *Coe*, 146 F.Supp. 24 (D.D.C., Oct. 29, 1956)

Zoning—Hotel's Bar and Coffee Shop Signs Removed

In action to enjoin interference with signs on hotel advertising cocktail lounge and coffee shop in hotel, held, where zoning regulation permits such accessory uses, hotel may not advertise them as independent commercial enterprises. *International Co.* v. *City of Miami Beach*, 90 So.2d 906 (Fla., Nov. 28, 1956)

Zoning—Lack Of Notice And Hearing Voids Ordinance Thereby Allowing Gas Station

In action by landowner to compel issuance of building permit to allow gasoline station in area zoned residential where plaintiffs contended that whole zoning ordinance was unconstitutional, held that since neither City of Dublin charter or its zoning ordinances provided for notice and opportunity to be heard, due process of law was not afforded. *Sikes* v. *Pierce*, 94 S.E.2d 427 (Ga., Sept. 7, 1956)

Zoning—Non-Conforming Restaurant In Residential Area Will Not Extend to Dancing

In action by property owners against city to enjoin enlargement of nonconforming restaurant and bar to allow dancing, held, music and dancing are not incidental to nonconforming use in view of noise created. *Heagen* v. *Borough of Allendale*, 127 A.2d 181 (N. J. Super. Ct., App. Div., Nov. 21, 1956)

Recent City Manager Appointments

William M. Mims
Newport, N. H.

Richard Custer
Zanesville, Ohio

Cornelius Bodine, Jr.
Sioux City, Iowa

Dean I. Dauley
Little Rock, Ark.

Karl E. Lehr
Xenia, Ohio

Robert F. Peart
Durango, Colo.

JAMES L. ASHER, general manager, Port of Brunswick, Ga. was recently appointed the first city manager of Whitwell, Tenn. Mr. Asher was previously manager of Jekyll Island, Ga.

EUGENE R. ASMUS, administrative assistant at Gardena, Calif. was recently appointed manager of Baldwin Park, Calif., succeeding Elmer Cook.

KARL A. BALDWIN, city manager of Los Gatos, Calif. for the past four and one-half years, was recently appointed the first manager of Pacifica, Calif. Mr. Baldwin was previously assistant city manager of San Mateo, Calif.

JOHN S. BECKMAN, former city manager of Guttenberg, Iowa was recently reappointed as manager of that city. Mr. Beckman was previously a soil conservation engineer.

CORNELIUS BODINE, JR., who had been manager of Rock Island, Ill., for four years, was recently appointed city manager of Sioux City, Iowa, succeeding R. M. Hoisington. Mr. Bodine was previously manager of Kissimmee and Winter Park, Fla., Mountain Brook, Ala., and Paducah, Ky.

ARTHUR W. BREWER, former city manager of Downey, Calif. was recently appointed the first manager of San Anselmo, Calif. Mr. Brewer was previously manager of Buena Park, Calif. and administrative assistant in San Leandro, Calif.

RICHARD CUSTER, manager of Kenosha, Wis., for the past five years, was recently appointed the first city manager of Zanesville, Ohio. Mr. Custer was previously manager of Ft. Fairfield, Maine, and Windsor, Conn.

DEAN I. DAULEY, manager of Grand Prairie, Texas for two years, has been appointed the first city manager of Little Rock, Ark. He was previously manager of Owensboro, Ky.

JACOB D. DUMELLE, director of inspections in Peoria, Ill. was recently appointed the first manager of Lebanon, N. H. Mr. Dumelle was previously administrative assistant in Peoria and Brookfield, Ill.

RICHARD J. DUNN, administrative assistant in Oak Park, Ill. was recently appointed manager of Oberlin, Ohio, succeeding Fred E. Weisbrod. Mr. Dunn was previously senior planner for the Rhode Island Development Council.

ERNEST M. FORD, a local insurance man, was recently appointed city manager of Owensboro, Ky., succeeding John A. Hettler.

WILLIAM A. GILDEA, former manager of Newport, R. I. was recently appointed the first city manager of Brockton, Mass.

DAVID GOODMAN, city manager of Abingdon, Va. for the past 11 years was recently appointed the first manager of Mt. Kisco, N. Y.

WILLIAM GARY HEAD, assistant manager of Southern Pines, N. C. was recently appointed manager of Carolina Beach, N. C., succeeding Howard D. Criswell.

DOUGLAS HENSLEE, city manager of Beeville, Texas for the past six years, was recently appointed manager of Harlingen, Texas, succeeding L. M. Crow, Jr. Mr. Henslee was previously budget officer of Waco, Texas.

CHARLES E. JACKSON, assistant city manager of South Miami, Fla. was recently appointed manager of Dade City, Fla. succeeding Oscar Hettema.

ANGUS JOHNSON, city manager of Middletown Township, Pa. for the past two years, was recently appointed manager of Elmira, N. Y., succeeding Thomas A. Banfield. Mr. Johnson was previously community planner in South Jersey, Pa.

ROY A. KANE, manager of Bethel, Vt. for the past two years, was recently appointed manager of Conway, N. H., succeeding Percival H. Wardwell. Mr. Kane was previously administrative assistant in Winston-Salem, N. C.

LAVERNE A. KIMBALL, administrative assistant in Redwood City, Calif. is the new manager of Walnut Creek Calif., succeeding Ira E. Gunn.

KARL E. LEHR, administrative assistant at Grand Rapids, Mich. was recently appointed manager of Xenia, Ohio, succeeding J. J. Salovaara.

ARTHUR LOWTHER, manager of Golden, Colo. for the past four and one-half years, was recently appointed the first manager of Skokie, Ill. Mr. Lowther was previously clerk-treasurer of Golden, Colo.

LOUIS MALLEY, administrative and information secretary in Hollywood, Fla. was recently appointed manager of Dania, Fla., succeeding Charles R. Chevalier, Jr.

WILLIAM M. MIMS, finance officer and comptroller of Clifton Forge, Va. was recently appointed city manager of Newport N. H., succeeding Harry D. Ripley.

ROBERT F. PEART, city manager of Price, Utah was recently appointed manager of Durango, Colo., succeeding M. W. Thomas. Mr. Peart was previously manager of Sterling and Garden City, Kans., and Lebanon and Maryville, Mo.

CLIFFORD C. PETRIE, manager of West Covina, Calif. for the past two years, was recently appointed manager of Monterey Park, Calif., succeeding E. Frederick Bien. Mr. Petrie was previously manager of Manhattan Beach and Culver City, Calif.

HENRY MCKIE SALLEY, a retired U. S. Army colonel, was recently appointed city manager of Tarpon Springs Fla., succeeding James W. Darling.

WILLIAM E. SEACHRIST, administrative assistant in Pottstown, Pa., was recently appointed the first city manager of Ridgeway, Pa.

HOWARD J. SEARS, county manager of Charleston County, S. C. for the past seven years, was appointed county manager of Glynn County, Ga. Mr. Sears was previously county manager of Hamilton County, Tenn.

WILLIAM H. STRUWE, manager of Dormont, Pa. for the past two years, was appointed the first manager of lower Makefield Township, Pa. Mr. Struwe was previously assistant manager of Mt. Lebanon, Pa.

ROGER K. ULSTAD, city manager of Villa Park, Ill., was appointed manager of Golden Vallen, Minn. Mr. Ulstad was previously manager of Robbinsdale, Minn.

R. E. WEAVER, director of public service in Bay Village, Ohio was recently appointed the first manager of Twinsburg, Ohio. Mr. Weaver was previously building commissioner of Cleveland Heights, Ohio.

L. E. WEBER, personnel officer in Corpus Christi, Texas was recently appointed manager of Beeville, Texas, succeeding Douglas Henslee. Mr. Weber was previously administrative analyst in Corpus Christi and administrative aide in Lubbock, Texas.

ORIN F. NOLTING
Executive Director
International City Managers' Association

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Conventions — When & Where

Conventions listed this month for the first time are indicated by an asterisk (*)

April 7-10—West Lafayette, Ind.
PURDUE ROAD SCHOOL. Forty-fourth Annual Meeting (Purdue Memorial Union Building). For information address K. B. Woods, Head, School of Civil Engineering, Purdue University, Lafayette, Ind.

April 16-18—Lincoln, Nebr.
AMERICAN WATER WORKS ASSOCIATION—Nebraska Section. Annual Meeting (Cornhusker Hotel). Exec. Sec., Jere Ott, 2818 21st St., Columbus, Nebr.

April 20-25—Dallas, Texas
AMERICAN WATER WORKS ASSOCIATION. Jointly with SOUTHWEST SECTION. Annual Convention (Convention Hall). Sec., Harry E. Jordan, AWWA, 2 Park Avenue, New York 16, N. Y.

April 23-26—Stockton, Calif.
CALIFORNIA SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Convention (Hotel Stockton). Sec.-Treas., Robert J. Barletta, 719 S. Loara St., Anaheim, Calif.

April 28-29—Roanoke, Va.
VIRGINIA INDUSTRIAL WASTES AND SEWAGE WORKS ASSOCIATION. Annual Convention (Hotel Roanoke). Sec.-Treas., Orval J. Hand, State Dept. of Health, Charleston 5, W. Va.

***May 1-2—Elizabeth, N. J.**
INDUSTRIAL MUTUAL AID CONFERENCE (Elizabeth-Carteret Hotel). For information address S. A. Anthony, Jr., Exec. Vice Pres., Industrial Security Institute, 475 Fifth Ave., New York 17, N. Y.

May 5-7—Lafayette, Ind.
CENTRAL STATES SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Purdue University). Sec.-Treas., George F. Bernauer, 713 Chapman St., Madison, Wis.

May 5-7—West Lafayette, Ind.
PURDUE INDUSTRIAL WASTE CONFERENCE. Annual Meeting (Purdue Memorial Union). Exec. Sec., Don E. Bloodgoord, Professor of Sanitary Engineering, Civil Engineering Bldg., Purdue University, W. Lafayette, Ind.

May 6-8—New Orleans, La.
AMERICAN PUBLIC POWER ASSOCIATION. Annual Meeting (Roosevelt Hotel). Gen. Mgr., Alex Radin, 1025 Connecticut Ave., N.W., Washington 6, D. C.

May 6-8—Washington, D. C.
NATIONAL HIGHWAY USERS CONFERENCE. Annual Meeting (Mayflower Hotel). Dir., Arthur C Butler, 966 National Press Bldg., Washington, D. C.

May 11-13—Nashville, Tenn.
TENNESSEE MUNICIPAL LEAGUE. Annual Convention (Andrew Jackson Hotel). Exec. Sec., Herbert J. Bingham, Life & Casualty Tower, Nashville, Tenn.

May 14-17—Washington, D. C.
NATIONAL RIVERS AND HARBORS CONGRESS. Annual Convention (Mayflower Hotel). Exec. Vice Pres., William H. Webb, 1028 Connecticut Ave., N.W., Washington 6, D. C.

May 15-17—Spokane, Wash.
AMERICAN WATER WORKS ASSOCIATION—Pacific Northwest Section. Annual Meeting (Davenport Hotel)). Exec. Sec., F. D. Jones, Asst. Water Supt., Spokane Water Department, 306 City Hall, Spokane, Wash.

May 15-17—Tucson, Ariz.
AMERICAN WATER WORKS ASSOCIATION—Arizona Section. Annual Meeting (El Conquistador Hotel). Sec.-Treas., Stanford I. Roth, Supervisor of Water Collections, Division of Water & Sewers, Phoenix, Ariz.

May 15-17—Tucson, Ariz.
ARIZONA SEWAGE AND WATER WORKS ASSOCIATION—Sewage and Industrial Wastes Section (El Conquistador Hotel). Sec.-Treas., Stanford I. Roth, 813 Jefferson St., Phoenix, Ariz.

***May 15-17—York, Pa.**
EASTERN ASSOCIATION OF FIRE CHIEFS. Annual Meeting (Yorktowne Hotel). Sec., Chief Edwin J. Clark, Box 328, Wayne, Pa.

May 18-22—Washington, D. C.
AMERICAN SOCIETY OF PLANNING OFFICIALS, National Planning Conference (Statler Hotel). Exec. Dir., Dennis O'Harrow, ASPO, 1313 E. 60th St., Chicago 37, Ill.

***May 18-24—San Juan, P. R.**
INTERAMERICAN ASSOCIATION OF SANITARY ENGINEERING. Sixth Congress. For information, address Enrique Ortega, Box 218, San Juan, P. R.

May 19-22—Toronto, Canada
NATIONAL INSTITUTE OF MUNICIPAL CLERKS. Annual Meeting (King Edward Hotel). Sec.-Treas., Arthur J. Shinners, Town Clerk's Office, Town Hall, Brookline 46, Mass.

May 19-23—Chicago, Ill.
NATIONAL FIRE PROTECTION ASSOCIATION. Annual Meeting (Palmer House). Exec. Sec., Charles S. Morgan, 60 Batterymarch St., Boston, Mass.

May 21-23—Spokane, Wash.
ASSOCIATION OF WASHINGTON CITIES. Annual Meeting (Davenport Hotel). Exec. Sec., Chester Biesen, 250 Smith Hall, University of Washington, Seattle 5, Wash.

May 24-25—Toronto, Canada
INSTITUTE OF TRAFFIC ENGINEERS. Spring Board Meeting. Exec. Sec., David M. Baldwin, 211 Stratchona Hall, New Haven 11, Conn.

May 25-29—Philadelphia, Pa.
AIR POLLUTION CONTROL ASSOCIATION. Annual Meeting (Sheraton Hotel). Exec. Sec., Harry M. Pier, 4400 5th Ave., Pittsburgh 13, Pa.

***May 26-27—Liberty, N. Y.**
NEW YORK SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Grossinger's). Exec. Sec., R. C. Sweeney, 55 Church Street, White Plains, N. Y.

June 1-4—Lake Placid, N. Y.
NEW YORK CONFERENCE OF MAYORS. Annual Conference (Lake Placid Club). Exec-Sec., Addison Mallery, 6 Elk St., Albany, N. Y.

June 1-4—Toronto, Canada
AMERICAN WATER WORKS ASSOCIATION—Canadian Section. Annual Meeting (Royal York Hotel). Sec.-Treas., Dr. A. E. Berry, 72 Grenville St., Toronto, Ontario.

June 1-4—Victoria, British Columbia
CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES. Annual Conference (The Empress Hotel). Exec. Dir., George S. Mooney, Office M-33, Mount Royal Hotel, Montreal, Quebec

June 4-5—Gardner, Mass.
NEW ENGLAND SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Spring Meeting (Colonial Hotel). Vice Pres., Henry F. Munroe, 75 Paine Ave., Cranston 10, R. I.

June 5-7—Butte, Mont.
MONTANA MUNICIPAL LEAGUE. Annual Meeting (Finlen Hotel). Exec. Director, Alfred F. Klingler, Box 456, Shelby, Mont.

June 8-12—Milwaukee, Wis.
MUNICIPAL FINANCE OFFICERS ASSOCIATION OF THE UNITED STATES AND CANADA. Annual Conference (Hotel Schroeder). Exec. Dir., Joseph F. Clark, 1313 E. 60th St., Chicago 37, Ill.

June 11-13—Colorado Springs, Colo.
COLORADO MUNICIPAL LEAGUE. Annual Meeting (Antlers Hotel). Exec. Director, Jay T. Bell, 2300 Broadway, Boulder, Colo.

June 11-13—Minneapolis, Minn.
LEAGUE OF MINNESOTA MUNICIPALITIES. Annual Meeting (Hotel Nicollet). Exec. Sec., C. C. Ludwig, 15 University Library Bldg., Minneapolis 14, Minn.

***June 12-13—Frederick, Md.**
MARYLAND-DELAWARE SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Francis Scott Key Hotel). Sec.-Treas., W. M. Bingley, 7411 N. Charles St., Baltimore 18, Md.

***June 12-14—Biloxi, Miss.**
MISSISSIPPI MUNICIPAL ASSOCIATION. Annual Convention (Buena Vista Hotel). Exec. Vice Pres., W. J. Caraway, 205 Lamar Life Bldg., Jackson, Miss.

***June 12-14—McCall, Idaho**
IDAHO MUNICIPAL LEAGUE. Annual Meeting (Shore Lodge). Exec. Dir., Robertson W. Smith, Center Bldg., Weiser, Idaho.

***June 18-20—Toledo, Ohio**
OHIO SEWAGE AND INDUSTRIAL WASTES TREATMENT CONFERENCE. Annual Meeting (Commodore Perry Hotel). Sec.-Treas., Cleamon E. Lay, Ohio Dept. of Health, Div. of Sanitary Engineering, 101 N. High St., Columbus, Ohio.

June 22-23—Washington, D. C.
NATIONAL HOUSING CONFERENCE. Annual Meeting (Hotel Statler). Exec. Vice Pres., Lee F. Johnson, 1025 Connecticut Ave., N.W., Washington 6, D. C.

***June 22-27—Boston, Mass.**
AMERICAN SOCIETY FOR TESTING MATERIALS. Annual Meeting (Statler Hotel). Exec. Sec., R. J. Painter, 1916 Race St., Phila., Pa.

***June 23-27—Portland, Ore.**
AMERICAN SOCIETY OF CIVIL ENGINEERS. National Convention (Multnomah Hotel). Exec. Sec., William H. Wisely, 33 W. 39th St., New York, N. Y.

***June 25-27—Erie, Pa.**
AMERICAN WATER WORKS ASSOCIATION—Pennsylvania Section. Annual Meeting (Lawrence Hotel). Sec.-Treas., L. S. Morgan, 413 First National Bank Bldg., Greensburg, Pa.

***June 25-27—Rapid City, S. D.**
SOUTH DAKOTA MUNICIPAL LEAGUE. Annual Meeting (Sheraton-Johnson Hotel). Exec. Dir., J. G. Barger, Box 938, Aberdeen, S. D.

***June 30-July 2—Washington, D. C.**
AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS. Annual Convention (Hotel Shoreham). Gen. Chairman, Henry Schultheis, Mt. Zephyr Drive, Alexandria, Va.

***July 7-11—Cleveland, Ohio**
THE AMERICAN INSTITUTE OF ARCHITECTS. Annual Meeting (Cleveland Hotel). Exec. Dir., Edmund R. Purves, 1735 New York Ave., N.W., Washington 6, D. C.

***August 10-13—Portland, Ore.**
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Convention (Multnomah Hotel). Exec. Dir., Bernard F. Hillenbrand, 1721 De Sales St., N.W., Washington 6, D. C.

***August 17-22—Toronto, Canada**
ILLUMINATING ENGINEERING SOCIETY. Technical Conference (Royal York Hotel). Exec. Sec., A. D. Hinckley, 1860 Broadway, New York 23, N. Y.

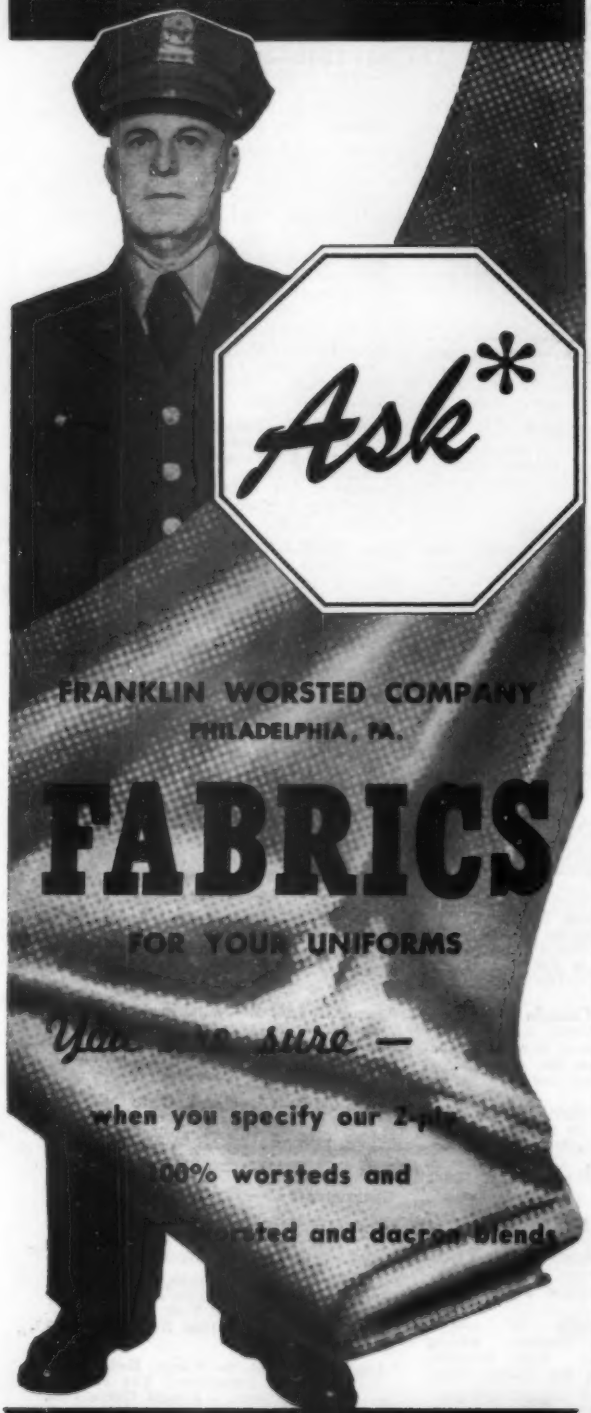
***August 31-Sept. 6—Liege, Belgium**
INTERNATIONAL FEDERATION FOR HOUSING AND TOWN PLANNING. Annual Convention. For information address Dennis O'Harrow, 1313 E. 60th St., Chicago 37, Ill.

***September 3-5—Philadelphia, Pa.**
NATIONAL CITIZENS PLANNING CONFERENCE OF THE AMERICAN PLANNING AND CIVIC ASSOCIATION. (Bellvue-Stratford Hotel). Exec. Sec., Harlean James, 901 Union Trust Bldg., Washington 5, D. C.

(Continued on page 239)

Municipal and Civic Publications

FRANKLIN FABRICS



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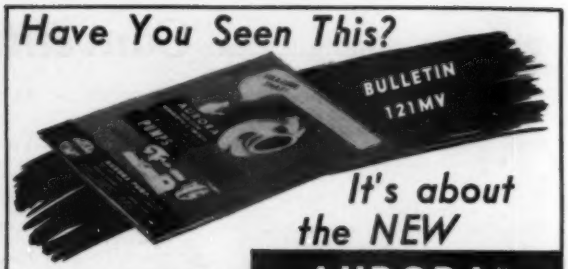

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Helena Public Library

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Municipal and Civic Publications

Publications on these pages are available from the addresses indicated in each listing and are usually free unless a price is given.

A Discussion on Waters and Wastes

ELEMENTS OF WATER SUPPLY AND WASTE-WATER DISPOSAL—*By Gordon Maskew Fair and John Charles Geyer, John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y.* 1958. 615 *pp.* $8.95.

A joint discussion on the subjects of water supply and waste-water disposal sharing much of the content of the author's larger work entitled, *Water Supply and Waste-Water Disposal.* This newer and shorter work is designed more specifically to satisfy the wants and needs of undergraduate students of civil and sanitary engineering but also serves as excellent reference material and a source of basic information.

The book contains a collection of 175 problems designed to put into practice the principles of the various subjects discussed.

Economic Area Study

THE WICOMICO-SALISBURY COMMUNITY — *A Social and Economic Survey of the Wicomico Area, Md. Government Consulting Service, Fels Institute of Local and State Government, University of Pennsylvania, 39th and Walnut Sts., Philadelphia 4, Pa.* 1957. 266 *pp. Paperbound.*

This study surveys the future potentiality of Wicomico County and the City of Salisbury, Md. with regard to physical resources and transportation; labor force employment; population and housing, cultural and civic resources; government services and finances; and local tax structure.

Pasadena Issues Municipal Report

PEOPLE, TAXES AND GOVERNMENT — *Annual Report for* 1956-1957. *City Hall, Pasadena, Calif. Paperbound.* 56 *pp.*

This is a thorough documented report of government in Pasadena, Calif., for the fiscal year 1956-1957. In makeup and style it is similar to annual reports issued by corporations.

Some of the highlights of Pasadena's activities during this period included: two new branches added to the public library system, the addition of a second steam electrical generating plant of 40,000 kilowatts, and the completion of the Don Benito reservoir. City expenditures totaled $9.5 million, and income, $9.6 million.

Procedures for Special Assessments in Wisconsin

SPECIAL ASSESSMENTS IN WISCONSIN: A MANUAL OF PROCEDURES AND FORMS FOR CITIES AND VILLAGES—*Issued by League of Wisconsin Municipalities, 30 E. Johnson St., Madison, Wis.* 1958. 44 *pp. Paperbound.* $1.

This manual was put out to aid Wisconsin cities and towns in levying special assessments for public works improvements, for current services and for condemnation benefits. It includes a discussion of the special assessment laws which went into effect January 1, 1958, plus samples of the proper forms for levying special assessments under these laws. In Wisconsin, new state laws have eliminated the multiple procedures used in assessing for public improvements, with certain exceptions.

1957 Census Report—Local Government Structure

CENSUS OF GOVERNMENTS, 1957: LOCAL GOVERNMENT STRUCTURE—*Bureau of the Census, U. S. Department of Commerce. Vol. I Nov* 3, 1957. 85 *pp. Paperboard,* 55c. *Available from the Superintendent of Documents, U. S. Government Printing Office, or any of the field offices of the Department of Commerce.*

This report is the third of several publications making up Volume I, *Governmental Organization,* of the 1957 Census of Government. The publication is a reference manual, revising to January 1957, a 1952 report on local government structure. It gives a state-by-state description of each type of local governmental unit for which there is legal authorization, including other types of local units classified for census purposes as independent local governments. Listed along with the description is the number of units for the various types of local government in each state.

Water Pollution Control Act Explained

FACTS ABOUT THE FEDERAL WATER POLLUTION CONTROL ACT OF 1956—*U. S. Department of Health, Education and Welfare, Public Health Service. Copies available from Superintendent of Documents, U. S. Government Printing Office, Washington* 25, *D. C.* 16 *pp.* 15 *cents.*

A book for the community leader setting forth facts of Public Law 660, 84th Congress such as authorizations in the Act; planned programs with regard to pollution control, research, technical assistance and training; and program grants. It also sets forth the enforcement measures against pollution of interstate waters and explains how the act is administered.

Parks & Recreation

RECREATION AREAS—THEIR DESIGN AND EQUIPMENT. *By George D. Butler. Ronald Press Co., 15 East 26th St., New York* 10, *N. Y. Second Edition.* 174 *pp.* $6.

This is a technical, detailed book on the planning and development of modern recreation areas, prepared for the National Recreation Association by its research director. Its illustrations include diagrams and plans for different types of playing areas. It discusses how to plan a recreation area—what its design and construction features should be, and what equipment, facilities and buildings it should have. It goes into the essential functions of the different types of recreation areas; and describes how to landscape these areas and to prepare them for winter use.

Zoning in Maryland—Court Cases

ZONING NOTES: CASES OF THE COURT OF APPEALS OF MARYLAND—*By C. William Brooks and Louis Walner, The Michie Co., Charlottesville, Va.* 1957. 274 *pp.*

This book is a comprehensive index of zoning cases heard before the Maryland Court of Appeals. The subjects are treated in alphabetical order, and in the back there is a table of cases included in the subject section, with page references.

Pennsylvania Local Tax Collection Costs

AN ANALYSIS OF LOCAL TAX COLLECTION COSTS IN PENNSYLVANIA—*By Richard F. Schier and Eric A. Vadeland. Bureau of Municipal Affairs, Department of Internal Affairs, Commonwealth of Pennsylvania, Harrisburg.* 1958. 36 *pp. Paperbound.*

This is an analysis of the costs of the local tax collection system in Pennsylvania. These costs have been the subject of recent criticisms in the press and by civic groups such as Chamber of Commerce, and the League of Women Voters.

The study seeks to determine the costs of local tax collection in Pennsylvania, and whether or not the present system of local tax collections is the most efficient and economical possible. It also seeks to determine how much of the costs of the present system is accounted for by the fees paid to the local tax collectors.

The report examines the costs of tax collection in municipalities ranging in population from under 1,000 to over 10,000, and finds a direct relationship between the size of population and the percentage cost of collection. The conclusion is that under the present system the cost of tax collection is extremely high and that there is no reasonable relation between the amount of taxes collected and the collection cost. The report further concludes that there is a lack of uniformity in the expenses of and compensations of the tax collectors. The great number of tax collectors is a major factor in the high costs of local tax collection in Pennsylvania. The report then discusses various proposed solutions to the present situation.

Air Pollution Legislation

A RATIONAL APPROACH TO AIR POLLUTION LEGISLATION — *By the Subcommittee on Legislative Principles, Air Pollution Abatement Committee, Manufacturing Chemists' Association, Inc.,* 1625 *I St., NW Washington* 6, *D. C.* 1958. *Copies available on request.*

The Manufacturing Chemists Association has published a second edition of its booklet on air pollution legislation and control. The booklet discusses the fundamental precepts and cardinal principles of laws to control air pollution. It also goes into what the provisions of the law should be, and brings up the question of proper zoning.

The association indicates that the air pollution problem is best tackled on a local level since the specific nature of the air pollution problem is apt to vary from community to community, while the state would assume the role of technical advisor.

Subdivision Regulations

SUBDIVISION REGULATIONS: A GUIDE—*Bureau of State and Local Government, City Planning Division, University of Arkansas, Fayetteville, Ark.* 1957. *Publication No.* 209. 12 *pp.*

This guide to subdivision regulations discusses what makes good subdivision regulations, and was prepared for use by members of planning commissions. The guide indicates the phases in developing a plat for record, definitions involved in the regulations, procedural requirements, plat requirements, design and layout, requirements for final plat approval, authority and enforcement, fees, etc. It is an excellent guide to use in preparing subdivision regulations.

Finance & Taxation *Industry and Community*

Helena Public Library

THE HELENA PUBLIC LIBRARY, HELENA, MONTANA—*A Survey, Public Library Service. By Frederick Wezeman, Library School, University of Minnesota, Minneapolis, Minn.* 1957. 41 *pp. Paperbound.* $3.

This is a survey of the Helena Public Library system, based on examination of the library building and its materials; and, on interviews with library employees, members of the library board, the mayor, the superintendent of schools, and other citizens.

The survey offers the following conclusions, that: (1) the Mayor and the Library Board are directly responsible for public library service effectiveness; (2) a Chief Librarian post should be established by the Board; (3) the Board should create a classification and pay plan for the library employees; (4) a new library be built; and (5) close liaison be maintained with other Helena libraries.

Aid for Handicapped Children

REPORT ON DIAGNOSTIC AND REHABILITATION CENTERS FOR HANDICAPPED CHILDREN—*Committee on Medical Care, Maryland State Planning Commission,* 100 *Equitable Bldg., Baltimore* 2, *Md.* 1957. *Publication No.* 97. 30 *pp.* 50c.

This report is the result of a survey to determine the following: prevalence of various factors in causing children to be handicapped; the needs of these children; how adequate are existing facilities; what improvements in services and facilities are needed; how to better coordinate and assure continuity of service; and, how such services and facilities can be used for medical training.

Beverly Hills' "Five Year Plan"

1953-1958, FIVE YEARS OF MUNICIPAL PROGRESS IN BEVERLY HILLS, CALIF.—*Prepared by the City Council, Beverly Hills, Calif.* 1958. 16 *pp. Paperbound.*

This report of the Beverly Hills, Calif. City Council discusses in an authoritative but nonetheless personal way, the problems faced by that city five years ago and what it has done to eliminate them. It discusses the improvements in services offered during the five-year period from 1953 to 1958, and assesses the progress of its capital improvement program.

Building Razing

THE RAZING OF BUILDINGS: A MANUAL ON THE PROCEDURE FOR COMPELLING REMOVAL OR REPAIR OF UNSAFE STRUCTURES—*Issued by the League of Wisconsin Municipalities,* 30 *East Johnson St., Madison* 3, *Wis.* 1958. 13 *pp. Paperbound* $1.00.

This is a manual intended to assist Wisconsin cities and towns in the administration of their renovation programs. It is concerned with the proper procedure for the razing of buildings.

The manual discusses how to discover substandard buildings and structures; and, includes a sample form for a building inspection report. It indicates how to determine when a building should be razed. It discusses the procedure for serving a condemnation order and includes a sample condemnation order together with an affidavit of service. In the event that the building should prove unfit for human habitation, the manual points out the proper procedure for placarding.

Redevelopment Project in Philadelphia

EASTWICK NEW HOUSE STUDY—*Redevelopment Authority of the City of Philadelphia, Pa.* 1957. 66 *pp.* $5.

This is a study of house and block designs for a redevelopment project in southwest Philadelphia. The overall plan provides a framework of major streets and community facilities within which private builders may design and build attractive neighborhoods of homes.

Other Reports Received

Annual Reports

CHARLESTON COUNTY, S. C.—Annual Report for the year ending June 1957.

CINCINNATI, OHIO—Cincinnati Progress 1957-8.

COVINA, CALIF.—Report to the People, 1957.

FAYETTEVILLE, W. VA.—Financial and Physical Assets Report of the Municipal Water Works, Sanitary Board, Huse Memorial Park and Town Government. 1958.

GRAND HAVEN, MICH.—A Decade of Progress 1947-57.

LEXINGTON, N. C.—Report to the People, 1957.

MOUNT UNION, PA.—1957 Annual Report.

NEW SOUTH WALES, AUSTRALIA—Department of Local Government Annual Report for the year ending June 1956. 1957.

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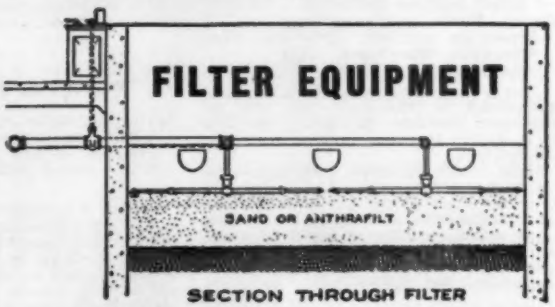

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Finance & Taxation

BAYTOWN, TEXAS—Annual Budget for the fiscal year ending September 1958.

COLUMBIA, MO.—Annual Budget for the fiscal year ending September 1958.

HALIFAX, NOVA SCOTIA—Report of the Commission to Investigate the Taxation System in the City of Halifax. 1957.

PENNSYLVANIA — Local Government Taxes Levied under Act 481 in 1955. By Mildred I. Brooks, Bureau of Municipal Affairs, Department of Internal Affairs, Harrisburg. 1957.

PITTSFIELD, MASS.—Postwar Progress, 1946-1957. A report on municipal finances and city growth.

SAN ANTONIO, TEXAS—Annual Financial Report for the year ending July 1957.

SOUTH DAKOTA—Report of the Committee on Assessment, Taxation and Finance, and Report of the Special Tax Study Committee. South Dakota Legislative Research Council, Pierre, South Dakota. 1956.

YOUNGSTOWN, OHIO — 1957 Annual Report, Sinking Fund.

VALLEJO, CALIF.—1957-1958 Budget.

Health

BALTIMORE, MD.—General Hospital Facilities for the Baltimore Area: Study and Report. Baltimore Hospital Survey Committee. 1958.

Inlustry and Community

BURKESVILLE, KY. — Industrial Resources. Prepared by Burkesville Chamber of Commerce and Kentucky Department of Economic Development, Frankfort. 1957.

COLUMBIA, KY.—Industrial Resources. Prepared by Columbia Chamber of Commerce and Kentucky Department of Economic Development, Frankfort, 1957.

Planning, Zoning & Housing

MEMPHIS, TENN.—1956-1957 Annual Report of the Memphis Housing Authority: From Slums to Private Housing . . . By Way of Public Housing.

MISHAWAKA, IND.—A Report on Population Growth and Urban Potential: Mishawaka Urban Area. Prepared for the City Plan Commission by City Planning Associates, Detroit, Mich. 1958. $1.

Sanitation

ALLEGHENY COUNTY, PA.—Allegheny County Sanitary Authority Progress Report. 1958.

Water

ATLANTA, GA.—The Atlanta Water Works; Atlanta Grows Where Water Goes.

INDIANA—Fifty Years of Association in the Water Works Industry. Indiana Section, American Water Works Association. 1958.

Mechanized City Planning

By GLENN RICHARDS
Commissioner of Public Works
Detroit, Mich.

THE Detroit City Plan Commission is rapidly approaching the time when all of its important data will be on IBM cards—land-use, condition and assessment by block, population by census tract and neighborhood, employment by plant and industrial districts and many other factors. Modern electronic equipment will make this information quickly available for future design. All of this information permits ever-increasing accuracy in analyzing the future development pattern of the city and is of course vital in all of the highway development work now underway.

Assembling Data

Detroit has rated every residential block in the city—13,000 of them. Each is rated into one of eight categories of environmental conditions—based on the over-all quality of living provided—adequacy of structure, schools, recreational facilities, traffic, safety and other factors.

Detroit has also rated every acre of industrial land in the city into one of four categories of industrial quality from blight to stable. This includes among other measurements the factor of access, traffic congestion, parking and loading.

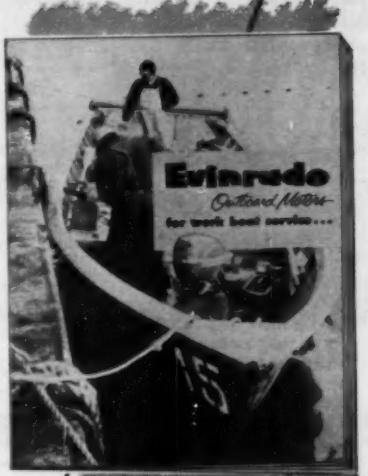
Detroit is rating every block of commercial property in the city (6,000 block frontages) into one of five categories of obsolescense based on factors such as physical condition, age, design, highway access, and parking.

Detroit will have a working knowledge of the use and condition and quality of all the 465,000 parcels of land in the city.

Detroit further is relating the use and condition of the 13,000 residential blocks, 15,000 acres of industrial land in 27 industrial corridor districts, 36,000 commercial parcels to the tax reurn for each type of property.

We are in a position to demonstrate the impact of deterioration on tax productivity. We know where

new book



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TODAY there's a *new kind* of outboard power for work boat duty! A complete line of new Evinrude *Aquasonic* models so advanced in capability, stamina, and smooth, quiet operation that they set entirely new standards of performance. Get the facts! Send coupon for booklet.

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industrial blight exists and the tax consequences of industrial blight.

We are in a position to demonstrate the impact of traffic using our major highway system and our local street pattern on degree of deterioration of our 155 residential neighborhoods.

Detroit is instituting in effect an IBM system of city planning analysis on every acre of city land just as Detroit is using automatic business machines to analyze its metropolitan traffic data on a continuing basis.

The Highway Impact on the Design for Living:

Detroit is currently refining its Master Plan by relating expressways, industrial corridors, residential neighborhood boundaries and commercial areas. The expressways serve in many cases as boundaries between industrial corridors and residential neighborhoods. In its central area, Detroit's expressways provide a clear and dominant urban design framework for rebuilding the heart of the city, including the Central Business District, which is rapidly developing into one of great beauty and efficiency, with the Civic Center, the Convention Center, the Cultural Center, and the Medical Center on its periphery. Lafayette Park University City, within a block of the Hastings Expressway but with every part of the neighborhood including the parks, schools, and local shopping centers accessible from every dwelling unit without a single pedestrian traffic crossing at street grade level, exemplifies the pattern for the urban neighborhood of the future.

Detroit's Neighborhood Plan:

Detroit's Expressway Plan, as well as the Plan of Major and Secondary Thoroughfares, is currently being studied as the framework for a revision of the plan for Detroit's 155 residential neighborhoods. Detroit's Neighborhood Conservation Program provides for 55 planned neighborhoods in five major residential sectors adjoining the central city, each of which will be developed as a balanced community area with the expressway and major throughfares system providing the basic structural pattern of the community. Traffic will flow easily from expressways to major thoroughfare feeder routes, (these feeder routes bound but do not traverse residential neighborhoods) and thence to local neighborhood access streets.

Expressways and Major Thoroughfares as Design Elements in the Future City:

Expressways are being considered in Detroit as positive factors in the redesigning of residential, industrial, and commercial centers. The time is seen ahead when major thoroughfares will pass around the edges of strong community shopping centers, the interior circulation of which will be for pedestrians only with a ring of parking around the center just as in the new planning shopping centers such as Northland and Eastland.

The expressway is being used in the Central Area of Detroit as a positive factor in the visual design of the city—as open space providing new settings for modern buildings and as the ever-changing viewpoint from which to enjoy the design of the city as it is rebuilt. The motorist traveling over Detroit's new expressways sees vistas of inspiring beauty. The downtown skyscrapers grouped as a modern acropolis dominating the Central area scene are being increasingly observed and appreciated by Detroit's highway travelers.

Best way under the sun

to invite cleanliness and cut clean-up costs

New Superior waste receptacles have two full-width flaps that swing in to keep rain out. Flaps operate independently to provide easier, safer waste disposal. Hinged top folds back for easier emptying and is interchangeable with existing tops. Stainless steel legs lengthen life.

Sturdy, all metal construction and rounded corners assure long use with no danger of snagging.

Flaps available in stainless steel or painted steel in choice of colors.

Standard Models in sizes for all locations — Parks, Streets, Playgrounds, Buildings — make these areas neater and safer.

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Superior Manufactures Wire Crates For Paper And Glass Bottles • Milk Cans • Cream Cans • Hooded And Open Pails • Strainers • Other Metalware For The Dairy Industry And Solar-Superior Waste Receptacles.

Conventions—
When and Where

(Continued from page 233)

***September 9-12—New York, N. Y.**
UNITED STATES CIVIL DEFENSE COUNCIL. Annual Conference (Waldorf-Astoria Hotel). Exec. Dir., Elliott Jackson, Municipal Auditorium, Atlanta, Ga.

***September 11-13—New Orleans, La.**
UNITED STATES CONFERENCE OF MAYORS. Annual Conference (Roosevelt Hotel). Exec. Dir., Harry R. Betters, 730 Jackson Place, N.W., Washington 6, D. C.

***Sept. 14-17—Colorado Springs, Colo.**
NATIONAL MUNICIPAL LEAGUE. National Conference on Government (Antlers Hotel). Asst. Dir., Allen H. Seed, Jr., 47 E. 68th St., New York 21, N. Y.

***September 16-19—Los Angeles, Calif.**
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Conference (Biltmore Hotel). Sec.-Mgr., B. Richter Townsend, International Association of Fire Chiefs, 232 Madison Ave., New York 16, N. Y.

***September 22-26—Atlantic City, N. J.**
NATIONAL RECREATION CONGRESS (Hotel Ambassador). Sec., Willard B. Stone, 8 W. 8th St., New York 11, N. Y.

***Sept. 28-Oct. 1—Kansas City, Mo.**
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Convention (Muehlebach Hotel). Exec. Sec., D. F. Herrick, 1313 E. 60th St., Chicago, Ill.

***October 6-9—Detroit, Mich.**
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATIONS. Annual Conference (Sheraton-Cadillac Hotel). Exec. Sec., Ralph E. Fuhrman, 4435 Wisconsin Ave., N.W., Washington, D. C.

***October 7-9—**
Blackwater Falls State Pk., West Va.
NATIONAL CONFERENCE OF STATE PARKS. Annual Meeting (Park Lodge). Exec. Sec., Harlean James, 901 Union Trust Bldg., Washington 5, D. C.

***October 20-23—Philadelphia, Pa.**
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. 63rd Convention (Sheraton Hotel). Convention Mgr., Irvin Shulsinger, 130 W. 42nd St., New York, N. Y.

***October 28-31—Los Angeles, Calif.**
AMERICAN WATER WORKS ASSOCIATION—California Section. Annual Meeting (Ambassador Hotel). Sec., H. J. Ongerth, Engineer, State Dept. of Health, 2160 Milvia St., Berkeley, Calif.

First News . . .

. . . on proposed municipal projects in which the municipality has not yet selected a consulting engineer:

Water purification plant **at Fairfield, Calif., reported March 18 by City Administrator B. G. Wilson.**

Sewage treatment plant **at Town of Gilbert, Ariz., reported March 15 by Town Manager Raymond Board.**

Replaces many individual machines on the job. With Backhoe and Front End Loader, Schramm Heavy Pneumatractor becomes a machine-of-all-work. Besides furnishing compressed air for air tools, Pneumatractor can dig to a depth of 9'6" and load what it digs into a 9' dump truck.

SELF-PROPELLED DIESEL AIR COMPRESSOR . . .

Outworks tractor mounted backhoes

Here's a Schramm Diesel Pneumatractor conserving a city's money. Its Diesel features assure more power at lower cost. And its Pneumatractor features let it outdig conventional tractor-mounted backhoes—and do a dozen other jobs besides. For example: loading and unloading materials, breaking out paving, drilling, backfilling, grading, tamping, mudjacking, driving form pins, spraying paint, pumping mud and sewage, sand blasting, sweeping and plowing snow.

Here is the indispensable tool for city maintenance and service departments. Pneumatractor converts instantly from air compressor to tractor, right from the instrument panel. Travels under its own power from job to job. Delivers 125 cfm of rated air for operating all kinds of pneumatic tools. Pushes, pulls and powers anything that can be handled by a wheel tractor.

Pneumatractor costs far less than a separate tractor and compressor. Cheaper to operate and maintain, too. The driver is also the operator. And any engine service man can service Pneumatractor with very little instruction.

Get complete details of this versatile machine. They're yours for the asking. Simply send for Catalog 5545—or ask your local Schramm Dealer for a demonstration. He's listed in the Yellow Pages of your local Telephone Directory.

Backhoe also operates as hoist. In addition to excavating for pipe lines or conduits to widths up to 36 inches, Pneumatractor lifts and handles drainage materials, lumber, masons' supplies, etc. No other machine does so many jobs so well.

One-yard bucket handles up to 2500 pounds. Front End Loader on Pneumatractor makes short work of hard-to-handle materials. Other attachments include dozer blades, material buckets, sweepers, snow plows, drills and many more.

Schramm, Inc.
MANUFACTURERS OF AIR COMPRESSORS
603 North Garfield Ave. • West Chester, Pa.

Sarasota's Municipal

loss during nonvacationing months.

It's NEW / It's from DORR-OLIVER

THE COMPLETREATOR

This D-O CompleTreator unit is serving a recreational facility at Freestone Point, Virginia.

Now . . . for the first time . . . complete sewage treatment for a population equivalent of 150 persons *in a single unit*. The CompleTreator unit consists of a Dorr Duo-Clarigester surrounded by two stages of high rate trickling filters and two recirculation pumps in respective wells. Solidly based on well-known and proven sanitary engineering principles and methods, the CompleTreator has the outstanding advantage of incorporating in a single unit those processes which previously required five separate tanks. Using the two-stage Biofiltration flowsheet with separate sludge digestion, average daily capacity is 15,000 gallons; and where normal domestic sewage is being handled, a treatment efficiency of 90% BOD and suspended solids removal can be realized. The CompleTreator is ideally suited for housing developments, restaurants, service stations, motels, schools, military installations and domestic type wastes from industrial activities.

For additional information on the Dorr-Oliver CompleTreator, write Dorr-Oliver Incorporated, Stamford, Conn., for a copy of Bulletin No. 7315.

CompleTreator is a Trademark of Dorr-Oliver Incorporated

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Sarasota's Municipal Trailer Park

(Continued from page 16)

parted with $646,981 to local merchants for drugs, gifts, clothes, etc.

Aside from this obvious impact on the city's business economy, the Mobile Home Park builds up a nice surplus, and the city taps this to perhaps write off a loss sustained by other city operations, or to finance a much needed capital improvement project.

Martin O'Neill, park manager, expects to wind up the current fiscal year with a $50,000 cash profit. Already, the city has earmarked $30,000 of this as the park's contribution to the general fund, and $7,000 to be applied to a bond issue floated in 1952, to help purchase additional land for the local golf course. This issue is due in 1962, and was figured on a $7,000 payment to be made from the profits of the golf course. Cannily, it was provided that if the golf course couldn't meet the payments, then these would come from the Mobile Home Park!

The Park had built up a surplus of $35,000 this year, but Sarasota solons abstracted it to apply towards a new swimming pool for colored residents.

During the month of February 1957, for example, the trailer park had a gross of $22,106, with expenditures of $13,614, for a profit of $8,551. Rents account for $15,100 during a peak month, with the rent including sewer, water and garbage collection.

A breakdown of the receipts for the month of February reveals interesting items like electricity, $2,981; fees and entertainment including admissions to such events as dances, $1,064; the park's grocery store sales of $2,142; $200 collected for post-office rent; $489 for use of the automatic laundry, and $77 for use of the central television antenna.

Expenditures are revelatory of efficient management. Personal services accounted for $5,893; contractual services $4,412; materials and supplies $3,282, and a significant figure of a capital expense of $24.36.

Manager O'Neill points out that most of the capital expenditures are spent during the summer months when the population of the park is at a low ebb, and after the heavy income for the year has been received. Thus this presents a truer picture of the park's financial status.

However, municipalities should know and expect that a city-operated trailer park may operate at a loss during nonvacationing months.

For example, in June, the Sarasota Park's receipts totaled $7,451, while expenditures rose to $8,599—with a net loss of $739. In addition, Manager O'Neill, carefully scrutinizing the net returns from the park's grocery store, has decided to close it. Its dwindling returns reflect the impact of chain store and supermarket competition, so that vending machines will replace the store and dairies will be permitted to deliver milk within the trailer park.

Any mobile home park must envision and grow in space accommodations, with the advent of wider and longer trailers, and a city-owned park" is no exception. Thus a "deluxing" treatment is being applied to a block each year in this city within a city. This means that the trailer lot sizes are doubled and sewer facilities are made available directly to the trailer.

Unexpected expenditures occasionally arise in the operation of trailer parks. For instance, Martin O'Neill had to dig up $300 this year to pay ASCAP for music played at park functions over which ASCAP had copyrights!

Despite the fact that the Mobile Home Park payroll is smaller than those existing at the city's golf course and casino, both in number and salaries paid, the Park, run on a businesslike setup, is by far the best paying proposition.

As such, the city has a ready-made till to tap whenever "distress money" is needed.

The spaces allotted each mobile home vary. In the most modern "deluxe" areas, there are spaces as large as 35 feet x 60 feet, which should handle any anticipated increase in mobile home size for many years. In the original spaces, each lot is only 25 feet x 30 feet in size, which was a generous allotment in the days of the old "trailer". Of course, rents are based on lot sizes.

Each mobile home is connected to the city water and sewage system, and has regular garbage and trash collections by the city sanitation service. For these services, as well as for occupational licenses, the park is operated as a private industry and thus "buys" the services from the city at the predominating rates.

Electricity is metered to the individual tenant from a secondary system owned by the park.

There are at present five community shower and toilet buildings throughout the park, but these will be done away with as more and more mobile homes are built with bathroom facilities included.

SAVE UP TO 50%

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- Finest sign base material available. Stiffer, stronger, more durable than steel or aluminum.
- Costs* ⅓ to ½ less than aluminum. (24" STOP blank, for example, is only $1.80 fob Tacoma).
- Hard plastic-like overlay needs no paint protection. Cuts finishing costs. Reflective sheeting may be applied direct; no prime coat needed.
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- Available in all standard sign shapes and sizes. Colors: black, amber. Also full-size panels up to 4' wide, 24' long.

PlyGlaze withstands vandalism damage that would knock metal out of service.

*For quotations or other data, write:

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subsidiary St. Regis Paper Co. / Dept. AC, Tacoma 1, Wash.

Please send following information about PlyGlaze sign blanks.

☐ Cost Data ☐ Use Manual ☐ Samples

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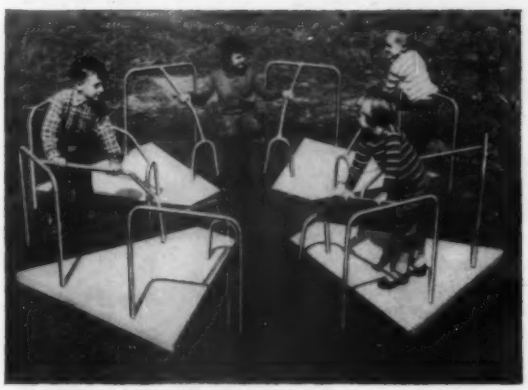
Safe, Durable, Easily Installed GAME-TIME Playground Equipment

UNCONDITIONALLY WARRANTED

Equipped with positive-acting hydraulic speed controls, the PULL-A-WAY is safer than ever. Propulsion pumps eliminate hopping on and off. No danger of legs being caught or children falling through structure. Two models, 12 and 16 ft. diameters. Accommodate up to 75 children.

Game-time offers a planning and layout service to help you make the most efficient and economical use of your facilities, whether in existence or to be constructed.



Another great favorite among smaller children, the WHIRL-A-WAY. Rugged, colorful, with highest safety design. 8-section die formed 10' diameter platform of 14 gauge safety plate. Galvanized steel tube hand rails. Sealed-in-grease bearings. Available with portable or permanent base.

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STOP ODORS in SEWERAGE DISPOSAL INSTITUTIONS PLANTS

In sewerage disposal plants, communities or institutions where there is an odor problem, *Aireactor* will give you the fastest, most efficient and most economical *deodorization*.

This safe non-toxic, non-flammable deodorizer causes a complete re-alignment of odor molecules, leaving the air odor-free and with a distinctive garden freshness. It is widely and successfully used across the country.

Aireactor can be used outdoors as a spray and can be fogged to counteract air pollution. The most economical air corrective ever conceived with original equipment for all applications.

Let us advise *you*, without obligation, on *your* odor problem. Write today.

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NATURE'S PRESCRIPTION FOR FRESHENING AIR

WORKS FAST!

Douglas COLLAPSIBLE VOTING BOOTHS

1 to 5 Stall

Save Space
Save Expense

metal storage case holds up to 5 booths

Douglas Collapsible Voting Booths stand 6'2", width and depth both 28". Bright red, white and blue striped canvas front curtain. Booths easily extended and set up. Master stall collapses to 6'2"x2" x 2". Steel construction, aluminum shelves. Above model available in all aluminum this year.

WE HAVE SUPPLIED VOTING EQUIPMENT TO THE MAJORITY OF LARGE CITIES IN THE U.S.A. DURING THE PAST 50 YEARS. WE ARE HAPPY TO ANNOUNCE PORTLAND, OREGON AND MULTNOMAH COUNTY, HAVE BEEN ADDED TO OUR LIST OF CUSTOMERS.

OTHER Douglas ELECTION EQUIPMENT

- Uni-Pack Collapsible Voting Booths
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For further information, contact your local dealer or write for FREE catalog and prices to:

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Where to Purchase

Information for officials interested in equipment and services for the construction, operation and maintenance of municipal utilities

Massey-Ferguson's new line of power-matched equipment in action. From left to right are: Work Bull 202 with Davis front-end loader and backhoe; Work Bull 1001 multipurpose tractor-loader; Work Bull 303 tractor with 500 loader; Work Bull Fork Lift with dump bucket.

Power-Packed Industrial Tractors, Loaders, Fork Lift, Attachments

Agility, power, stamina and versatility key the new line of Massey-Ferguson industrial equipment and attachments which have been matched for maximum efficient performance.

Work Bull 202, an industrial utility tractor with 40-hp, high-torque engine that develops extra lugging power at low speeds, is designed to accommodate the Davis front-end loader so as to operate as an integrated tractor-shovel.

Rear-end attachments on the 202, except for the Auburn Trencher, are mounted on a Ferguson hydraulic 3-point hook-up (optional). With a Davis 210 Backhoe, the 202 digs flush alongside buildings, fences, etc. Other attachments include tipping trailer, pipe and cable layer, side-mounted mower, scarifier scraper, multi-purpose blade and cordwood saw.

Full-power steering and individual turn brakes that can be locked for simultaneous use heighten maneuverability and make possible faster cycling in close quarters. Dual-range transmission with six forward speeds and two reverse meets job-power needs. Heavy-duty 11-inch Cerametalic clutch is fluid, positive and precise. A foot throttle that can over-ride the hand throttle speed can be used to increase cycle time.

Work Bull 1001 multipurpose tractor loader is convertible on the job site into eight different machines. As a *loader* with standard 75-inch wide bucket with ⅞-cubic yard payload capacity, the 1001 has a 43-degree bucket tilt back at ground level with 5,200 pounds of breakaway power. The unit's *street sweeper* attachment is a 63-inch broom with ¾-cubic yard dust pan.

When operating as a *rotary broom*, the 1001 sweeps a 96-inch swath with 30 degrees of hydraulic control right and left. With a Davis 210 *Backhoe*, it has its own backfill blade. As a *scarifier*, it rips through rough ground; as a *fork lift*, it lifts 2,500 pounds to 10 feet 5 inches. The 1001 *angle dozer* has an 84-inch high carbon steel blade with hydraulic tilt control. With *swinging crane*, the 1001 has a 2,000-pound capacity and handles heavy pipe, poles, logs, etc.

Operation of the Work Bull 1001 is made easier by a torque converter, which automatically adjusts power between speed and load requirements, and multiple-disc hydraulically-actuated reversing clutches that permit instantaneous change of direction without shifting. Individually controlled brakes and five-speed transmission in both forward and reverse add to the 1001's maneuverability.

A nitrogen accumulator serves as a load shock-absorber for the hydraulics when the unit is loaded and going over rough terrain. Lift arms may also be set in "float position" so the attachment will ride with the contour of the terrain.

The 1001 comes equipped with either a 52-hp gasoline engine or a 47-hp diesel. It features direct-line thrust and, for the operator, offers tops in control and comfort.

The medium-capacity Work Bull 303 industrial tractor, with 52-hp, 208-cubic inch displacement engine, is designed to team with the heavy-duty Work Bull 500 loader, which attaches directly to the 300 (pump mounting is built-in).

The 300 features hydraulically-actuated reversing clutches, torque converter, power steering, and double-disc brakes. The 6,350-pound unit has a heavy-duty industrial front axle and support which permits it to resist shock and impact of front-end loading.

Bucket capacity on the 500 is ¾-cubic yard struck and ⅞-cubic yard payload. Direct-line thrust and telescopic reach give it "bull-dozer" action and high reach. A three-spool valve eliminates the need for additional hydraulics to accommodate extra attachments, such as pick-up sweeper, swinging crane, lift fork, angle dozer, scarifier, rotary broom.

Ten quick-change attachments make the Work Bull Fork Lift a low-cost, versatile unit capable of performing a variety of materials handling assignments. The Fork Lift can operate under a clearance of 8 feet 2 inches; without mast extension it maintains a full 10 feet of lift height. It has full-time power brakes, and high flotation for operation in rough and muddy areas.

The mast assembly tilts 20 degrees forward and 10 degrees back to permit the unit to slide into the load and smoothly unload. The Fork Lift weighs 5,573 pounds and has a load capacity of 4,000 pounds at mast. It has a slow speed of 6 mph and a fast speed of 13.5 mph. It is available with 2 forward speeds and 6 reverse.

For more information on the Bull Work 202, 1001, 303 with 505 loader, and fork lift, write MASSEY-FERGUSON INDUSTRIAL DIV. OF MASSEY-HARRIS-FERGUSON, INC., 1009 S. WEST ST., WICHITA 13N, KANS., or you may use the Post Card on the insert following Page 54. Circle No. 769.

Compact Trencher Digs Big

Before placing its Model 77 ladder-type Trenchliner in production, Parsons subjected it to extensive tests digging trenches for telephone and other utility lines throughout the country. The resultant product is a compact unit of 5 feet 10 inches in roading height, 5 feet 5 inches in digging height, 4 feet in width and 6,750 pounds, that is said to incorporate all the features found on larger machines.

A self-cleaning bucket line has been introduced for the first time, with four speeds ranging from 38.5 feet to 246 feet per minute. The four conveyor-belt speeds range from 75 feet to 480 feet per minute. The conveyor is shiftable and reversible so that spoil can be deposited on either side of the trench. For depth variation, a telescopic boom has been provided.

Sixteen digging feeds, from 4.4 to 181 inches per minute, and 16 optional sprocket feeds, ranging from 6.2 to 252 inches per minute, are available. Digging range of the Model 77 is to depths of 5 feet at 6- to 18-inch widths.

Multiple disc friction clutches handle traction and steering. Each crawler is independently driven, independently braked.

The 77 can turn in its own length. A dual purpose excavator drive and safety clutch "slips" to protect machinery from shock loads.

Power for the Parsons 77 is provided by an International Harvester U-175 engine. The Trenchliner has four forward speeds: .375, .778, 1.42 and 2.41 mph; reverse speed is .307 mph. According to Parsons engineers, low traction transmission provides for maximum production regardless of soil conditions.

Complete information and prices on the Model 77 can be obtained from PARSONS CO., DIVISION of KOEHRING CO., NEWTON, IA., or, if you prefer, you may use the Post Card on the insert following Page 54. Circle No. 761.

Removes Iron, Manganese from Water

Municipal water supply systems may now utilize a compact pressure-diffuser method to remove iron and manganese from water. Offered by Graver Water Conditioning Co., Division of Union Tank Car Company, the system is applicable to both large and small installations.

Compressed air is injected into a vertical, cylindrical pressure chamber, or diffuser, through a specially-designed distributing device located near the tank bottom. As raw water flows through the tank, it becomes saturated with sufficient oxygen to oxidize any iron and manganese present in the water before it reaches the filter bed.

The flow of water through the diffuser tank is automatically started and stopped by a solenoid valve, located in the air line between the compressor and the diffuser tank and energized from the pressure switch controlling the operation of the well pumps. In case the solenoid fails to operate, a pressure relief valve will eliminate excessive pressure on the filters. This valve is located in the air line between the solenoid valve and the diffuser tank. A needle

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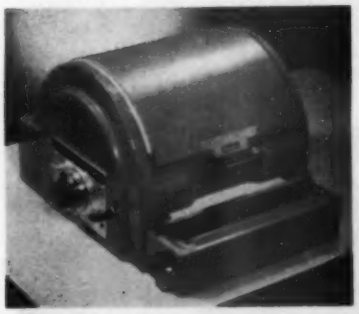
valve, in the air line ahead of the solenoid valve, permits proportioning of the amount of air in relation to the amount of iron contained in the water.

Free air entrapped in the water entering the filters is released when the water strikes the distributor baffle in the top head of the filter tank. An automatic relief valve adjacent to the baffle provides escape.

For additional information, write GRAVER WATER CONDITIONING CO., 216 W. 14th ST., NEW YORK 11, N. Y., or you may use the Post Card on the insert following Page 54. Circle No. 747.

Kodak Introduces "Point-of-Need" Copier



With its new Verifax Bantam Copier, Eastman Kodak Company expects to bring office copying within reach of the smallest one-man office and cut by one-third the cost of a decentralized, multiple copier system for larger companies.

The compact 14-pound Bantam is the first Verifax copier to employ a curved glass patten. It accepts originals up to 8½ inches x 11 inches in size, and at a materials cost of 2½ cents per copy makes up to five copies of typed, drawn, written, or printed original. It can make intermediates or masters on Verifax Translucent Copy Paper for use in diazo-type printers, and it is adaptable for use with the Verifax method of producing offset masters for office-type duplicators.

Kodak feels that because of size and price, extra Bantam copiers can be conveniently and economically located in large offices at points where they are needed. The Bantam is priced at $99.50; base dimensions of the copier are 13½ x 17⅛ inches.

Additional information on the Bantam and on the Verifax copying method may be obtained from BUSINESS PHOTO METHODS SALES DIVISION, EASTMAN KODAK COMPANY, ROCHESTER 4, N. Y., or, if you prefer you may use the Post Card on the insert following Page 54. Circle No. 745.

Big Highway Sign Program

More than one million dollars worth of all-aluminum highway signs and road markers are being constructed and erected by Federal Sign and Signal Corp. Here the signs are inspected by Robert D. Wisener, left, assistant to the president, and Roger Goranson, chief engineer.

Some 4,000 dark blue and dark green signs with intensely reflective letters, and employing a number of highway sign advances, will guide motorists on the new $460 million Connecticut Toll Road. In addition, 12,000 delineators—small silver- and amber-colored prismatic "cat's eyes"—will mark the shoulders of the roadway and all curves and intersections.

Federal Sign and Signal Corp. is constructing and erecting all of the signs and supporting structures under contract with the Connecticut State Highway Dept. According to William W. Scott, president of the company, turnpike sign programs totalling more than $2,000,000 have been awarded to Federal Sign and Signal in the last 18 months.

A number of highway sign advances incorporated in the Connecticut Toll Road program include a new type of special reflective sheeting on the background of 440 signs to catch the eye of motorists traveling at high speeds. Some 330 brightly illuminated fluorescent signs on 110 over-

*IN TEXAS
...AND THE WORLD OVER
KERN
SURVEYING INSTRUMENTS
*The Bridge Division of the State of Texas Highway Dept. uses Kern Instruments
WORLD FAMOUS FOR
Working Speed
Operational Simplicity
Accuracy & Economy
DKMI TEN SECOND THEODOLITE (with optical micrometer)
• Exceptional portability and precision.
• Readings automatically ... AT A GLANCE.
• Direct reading to 10". Estimation to 1". Average working accuracy —3-4 secs.
• Can be used with electric lighting unit for night work.
KERN CENTERING TRIPOD
Unique—a Kern first! Centers instruments in seconds with remarkable accuracy. Assures exceptional stability with ball-and-socket head, supporting instrument coupling.
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PROMPT, RELIABLE SERVICE
FACTORY TRAINED PERSONNEL
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The FINEST in SURVEYING EQUIPMENT
KERN INSTRUMENTS INC.
120 Grand St., White Plains, N. Y.

Simple-
Low Cost-
Reliable

60
YEARS
AHEAD!

Compact ejector system, motor compressor assembly and all controls in one "packaged" unit. Also made in twin units.

BLACKBURN-SMITH
sewage
ejectors

Lowest in installation, operation, maintenance costs. Greatest efficiency and sanitation. No complex piping, screens, impellers, shredders, etc. Discharges sewage at rate of 30 to 500 g.p.m., heads up to 150 ft. Hundreds in use, everywhere. Backed by 60 years' experience.

Write for Catalog S-55

Shows application, advantages, dimensions and layouts of B-S Pneumatic Sewage Ejectors, single and duplex units. Describes exclusive features of float, electric and pneumatic controls. Tells how to select proper size ejectors.

BLACKBURN-SMITH
MFG. CO., INC.
57 GARDEN ST., HOBOKEN, N. J.
OLdfield 9-4425
N. Y. Tel. BArclay 7-0600

Purchasing News

head steel spans will help direct traffic at toll booths and special interchanges.

All of the reflective letters, numerals and borders on the signs are demountable for easy maintenance. At night, prismatic optical lenses set into all letters, numerals, and borders will cause them to shine.

Other extensive highway sign programs have been completed for the Missouri State Highway Dept., Oklahoma Turnpike Authority, Kansas Turnpike Authority and Commonwealth of Kentucky. The largest overhead sign ever made to direct traffic onto a turnpike, a 40-foot wide sign on the Intercity Bridge at Kansas City, Kans., was installed by Federal on November 1. Highway sign programs are nearing completion for Chicago's 10-mile Calumet Skyway.

Full details on Federal signs and supporting structures are available from FEDERAL SIGN AND SIGNAL CORP., 8700 SOUTH STATE ST., CHICAGO 19, ILL. Write directly, or you may use the Post Card on the insert following Page 54. Circle No. 752.

Swiss Watchmakers Like U. S. Parking Meters

The Magee-Hale Park-O-Meter Company was featured in a recent display set up in the lobby of the Liberty National Bank, Oklahoma, City, Okla., hometown of the company.

Park-O-Meter built the world's first parking meter in 1935. Today, a total of 578,893 Park-O-Meters are in use in more than 1,325 cities, from Amory, Miss. to Zurich, Switzerland. In view of Switzerland's reputation in the field of measuring time mechanically, acceptance of the Park-O-Meter clock mechanism by the Swiss is a real tribute to the Oklahoma City concern.

Compact, Portable Patchmobile Has Big Plant Features

Wylie's Model PM-430 Patchmobile is a completely-new portable hot-asphalt plant designed for small paving jobs, paving repair, or maintenance. It combines the basic large plant principle of a rotary dryer for drying aggregate and separate pugmill for mixing aggregate and asphalt, as well as hot asphalt storage.

It consists of an aggregate charging hopper with a reciprocating feeder, a rotary dryer with low pressure burner heating system, a hot aggegate batching hopper, 250-gallon asphalt storage tank, pump-driven asphalt metering system, heated and single-shaft pugmill (twin-shaft is optional) driven by a totally enclosed oil bath gear box.

When operating as a mobile unit, the plant is towed by the same truck hauling the sand and gravel for the mix. Material is shoveled from the truck into the charging hopper. It is then fed from the charging hopper by the reciprocating feeder into the dryer, and passes through the dryer into the batching hopper. When the material in the batching hopper is discharged into the pugmill, a pre-set amount of asphalt is automatically sprayed into the mix. The mixed material from the pugmill can be discharged into the shoveling pan, onto

the pavement, or into a wheelbarrow, as desired.

The low charging height—64 inches—of this single trailer unit eliminates the need for an elevator. Material can readily be shoveled into the charging hopper from the ground.

Weight of the PM-430 Patchmobile is 5,260 pounds; overall length, 183 inches; width, 85 inches; capacity, 8 tons hot mix per hour depending upon moisture content and type of aggregate used. For additional information, write WYLIE MANUFACTURING CO., 640 N. MERIDIAN, OKLAHOMA CITY, OKLA., or you may use the Post Card on the insert following Page 54. Circle No. 749.

Converts Drums into Storage Containers

An economical and efficient way of converting 55- and 30-gallon drums into safe, sanitary storage containers for refuse, parts, equipment, etc., is to use "Flat-Top" Drum Lids, new addition to the Witt Cornice Company line of container covers.

Rust-resistant and of 20-guage steel, these drum lids are available galvanized or painted green. The 55-gallon size has a 24-inch ID and a 1¾-inch flange; the 30-gallon size, an 18⅞-inch ID and a 1½-inch flange. Each lid has been equipped with a center handle. Surfaces are seamless and smooth.

In plants, these lids encourage better housekeeping and can help reduce fire hazards. For complete information, write THE WITT CORNICE COMPANY, 4454 STEEL PLACE, CINCINNATI 9, OHIO, or you may use the Post Card on the insert following Page 54. Circle No. 756.

Revere Builds New Plant

The most recent expansion of REVERE ELECTRIC MFG. CO., CHICAGO, ILL., manufacturers of industrial and commercial outdoor lighting equipment, is marked by the construction of a new plant at 7420 Lehigh Ave., Niles, Ill.

Key part of the plant expansion will be an advanced modern research department, to be equipped with two Gonio Photometers with the latest type of automatic recorders, a 12-foot diameter full 360° integrating sphere, a vibrator tester, and a dynamometer for load-testing of poles. This will permit complete environmental testing, including salt spray and heat tests.

Erected on a 10-acre site, the new building contains 110,000 square feet of floor space: 100,000 allotted to manufacturing and warehousing; 10,000 to office space.

New, All-Hydraulic Street Sweeper

The Saginaw-South Bend "400" all-hydraulic street sweeper, recently introduced to the field, has been built with special attention to lowering maintenance and operation costs. Its open-flow hydraulic system drives and controls all sweeping, loading and dumping mechanisms and permits continuous operation with a minimum of maintenance. Because the sweeper has

Over 20 YEARS OF CONSTANT USE

on America's most famous Avenue—and still like new!*

For trouble-free performance and economy put long-life United Waste Receptacles on your Main Streets!

* Authentic case history:
United Waste Receptacles, after over 170,000 hours of daily use, required only one coat of paint to 'dress up' for 50th Anniversary of Fifth Avenue Assoc., New York City.

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Midwest Sales Office: 666 Lake Shore Drive, Chicago
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United—World's largest manufacturer of metal waste receptacles for business, industrial and civic use.

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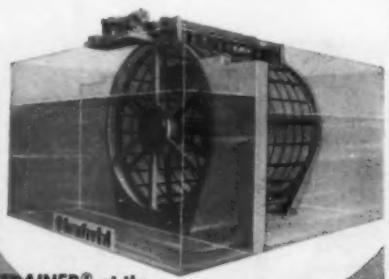
Automatic Water Filtration

. . . the Glenfield MICROSTRAINER® is the most unique advance in water filtration. Here are some of the major advantages:

low initial cost • high filtration efficiency • automatic and continuous operation under open gravity conditions • small head loss, eliminating pumping



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The "Pick" of
MINNEAPOLIS

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600 Rooms with bath from $5.50

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FREE RADIO AND TV
AIR-CONDITIONED ROOMS

Delicious Cuisine and Beverages

- WAIKIKI ROOM
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- COFFEE SHOP

ALWAYS THE BEST FOR EVERY GUEST
Albert Pick Motels

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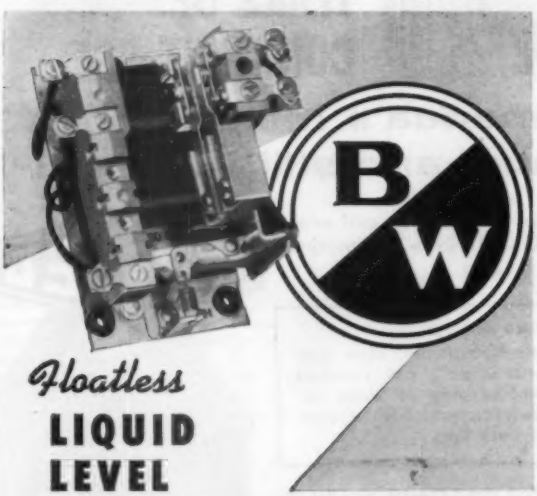
Thomas P. Ryan, mgr.



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LIQUID LEVEL
***and* INDUSTRIAL CONTROLS**

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Municipal Reference Data

THE AMERICAN CITY will send free of charge, one copy of any of the following reprints:

- Water Fluoridation No Toxic Threat
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We will gladly quote prices on additional quantities

Also a few copies still remain of:

Modern Water Rates (1954) $3.00 per copy
Municipal Officials' Handbook (1952) $1.00 per copy
(covering snow removal, street cleaning, refuse collection and disposal, street construction)

Address requests to

THE AMERICAN CITY
A Buttenheim Publication
470 Fourth Avenue **New York 16, N. Y.**

Purchasing

been constructed with a standard truck chassis, it can be quickly and easily serviced with standard replacement parts by automotive mechanics.

The "400" can travel at speeds up to 55 mph and sweep at speeds from 1.5 to 25 mph. Its large, quick-dump hydraulic hopper holds 4 cubic yards of dirt and gives longer periods of sweeping without unloading. A new, patented system that automatically adjusts for bulky objects without jamming or breaking assures longer conveyor life. The sweeper dumps from the rear.

Safety features include 4-wheel hydraulic brakes, covered cab, wrap-around, shatterproof windshield and 360° visibility for the operator. One-man operated, the Saginaw-South Bend does not require a follow-up crew or pickup truck. Though normally equipped with a right gutter broom, it is available with left gutter broom and dual driving controls for efficient cleaning of one-way streets.

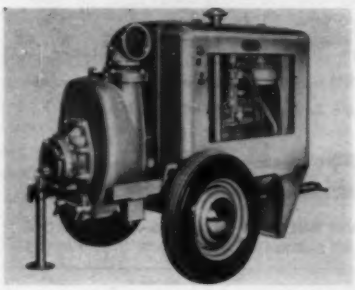
For additional information, write MUNICIPAL SUPPLY COMPANY, DEPT. S-10, 2508 S. MAIN ST., SOUTH BEND, IND., or, if you prefer, you may use the Post Card on the insert following Page 54. Circle No. 742.

Double-Duty Pressure, Dewatering Pump

The Jaeger Machine Company has specially designed its Model 6PH to pump large volumes of water at high heads. It can pump 1,050 gpm at 60 pounds for pressure service, or handle 10,000 gph at 10-foot suction lift as a dewatering pump. On wellpoint work, it offers a double advantage, too: high pressure to jet in wellpoints; big volume to dewater them.

The 6PH self-primes rapidly and is said to hold its prime indefinitely. Its replaceable liner plate is adjustable for wear, and its shaft, which is in high capacity ball bearing, has been equipped with the Jaeger Lubri-Seal to lubricate it for long life. It is accessible for inspection, obviating the need to dismantle the pump. Other special features include safety switches for high radiator temperature and low oil pressure, and complete 6-volt electric starting as standard equipment.

City water departments find the Jaeger



Model 6PH particularly useful for pressure booster service and for pumping from emergency sources of supply. For additional information, write THE JAEGER MACHINE CO., 550 W. SPRING ST., COLUMBUS 16, OHIO, or you may use the Post Card on the insert following Page 54. Circle No. 743.

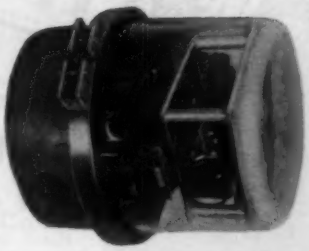
Sanitary, Portable Water Coolers

A complete line of hot dipped galvanized water coolers is being marketed by Schleuter Manufacturing Co. under the trade name Arctic Boy.

Said to be the only completely sanitary cooler of its type, the Arctic Boy cooler is dipped in molten zinc after it is formed to seal all seams and to make it 100% rustproof, leakproof and sanitary. A "Sparkleen" plastic lining, which is baked on with infra ray lights to assure permanency, keeps the cooler interior sparkling clean, odor free and taste free.

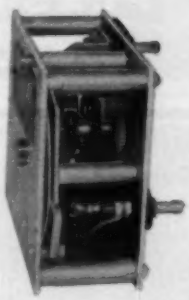
Heavy-duty and stainless steel models are furnished with styro foam insulation, paper cup dispenser lugs, and a heavy steel bottom band for extra support. Models in the 2- to 15-gallon range are fully corrugated for greater impact and damage resistance. They have solid brass nickle-plated spigots and the insets have rounded

TIME-O-MATIC
FLASHERS
Jack Mounted

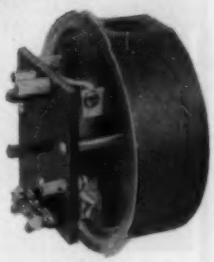


Time-O-Matic Jack Mounted Flasher in Standard Meter Case

Single or two circuits, every model with built-in eliminators. Available with standard meter case (above) or separately with Jack mounting panel (below).



Time-O-Matic Jack Mounted Flasher Only



Time-O-Matic Jack Panel in Meter Case

SPECIFY DEPENDABLE TIME-O-MATIC CONTROLS

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TOUGH TARPS

for ALL WEATHER PROTECTION

SAFE • TRANSLUCENT • WATERPROOF

Here's the tarp that makes canvas old-fashioned! Made of tough Bakelite KRENE, the flexible, lightweight, specially formulated vinyl. Resists deterioration from acids, oils and alkalis — stays flexible at low temperatures. 20-gauge dielectric strength 16,000 volts. Ideal for hundreds of industrial uses.

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931 S. E. 6th AVENUE • PORTLAND 14, OREGON

MFR. RAINWEAR • AIR MATTRESSES • SPORT AND UTILITY GOODS

New Kelly-Creswell Spray Gun Makes Road Striping Easier

Kelly-Creswell Company, Xenia, Ohio, has a new automatic striping gun for use on highway and industrial road marking equipment. Gun is patented.

The gun is diaphragm-operated which eliminates the air cylinder and upper packing gland found in most spray guns. This eliminates the greatest cause of air loss in automatic spray guns. The new gun requires about 25% less air to operate at peak efficiency.

The gun is being installed on all the various types of striping equipment made by Kelly-Creswell. Also available as a replacement part.

Kelly-Creswell is a pioneer manufacturer of a complete line of road-marking equipment— truck-mounted, power driven and hand operated.

For additional information write

Kelly-Creswell Company
Xenia, Ohio

20th year in exclusive manufacture of Striping Equipment

New BUDGET Line

Grimco Signs

Announcing . . . a new BUDGET line of high quality silk screened baked-enamel traffic signs. Prices are real low!

Finest QUALITY Line

Grimco Signs

Famous GRIMCO die-embossed, heavy gauge steel, street and traffic signs for communities that want the best at competitive prices.

✓ 5000 "In Stock" — Ready to Ship!

✓ Get a "Quote" by Return Mail!

GRIMCO Signs

GRIMM STAMP & BADGE CO.

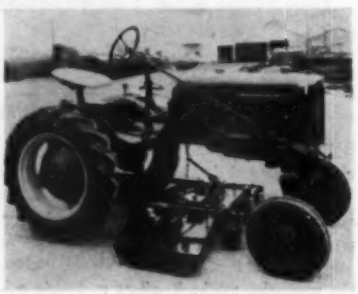
8105 Rosalie Ave. • St. Louis 17, Mo.

Purchasing

bottoms to ensure full-time cleanliness.

For additional information on the Artic Boy coolers, and for an explanatory booklet on the proper care, maintenance and sanitary precautions for water coolers of this type, write to SCHLEUTER MANUFACTURING CO., 4616 N. BROADWAY, DEPT. C-5, ST. LOUIS 7, MO., or you may use the Post Card on the insert following Page 54. Circle No. 741.

New Belly-Mounted Mower



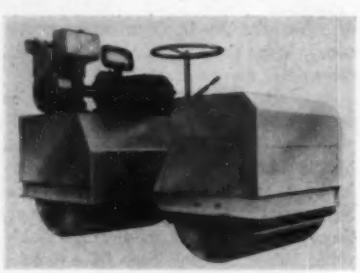
The new Urban Squire Model BM-60 is a light belly-mounted mower designed for mounting on either the Farmall Cub or the International Low Boy tractors. It cuts a 60-inch swath and is particularly suited for grass cutting in city parks, on parkway green strips and landing fields. The manufacturer reports that it is easy to install, economical to operate and competitive in price.

For additional information on the BM-60 grass mower, write SERVICE EQUIPMENT CO., P. O. BOX 1590, 1000 SINGLETON BLVD., DALLAS 21, TEXAS, or you may use the Post Card on the insert following Page 54. Circle No. 754.

Half-Ton Roller

Rolling off the Midland assembly line these days is a new 1½-ton power roller, the 150. Its exclusive design feature is center-pivot steering, which permits both rollers to turn, thus assuring perfect tracking of the rear roller.

Front and rear rollers on the unit are



equipped with spray bars and cocoa mats. They are also identical in width. This fact, in combination with center-pivot steering, guarantees full compaction from both rollers and the elimination of lap marks.

A body overhang of only 3 inches makes the Midland 150 extremely maneuverable in confined areas, and a 9-inch ground clearance provides flush rolling up to the curbing.

Power for the 1½-ton roller is furnished by a Briggs & Stratton engine delivering 9 hp. When empty, the 150 weighs 1,480 pounds; with water ballast, 2,860 pounds.

Illustrated literature on the Midland 150 power roller is available from MIDLAND PRODUCTS CO., MIDLAND PARK, N. J. Write directly, or you may use the Post Card on the insert following Page 54. Circle No. 751.

Appoints Distributor

PROPORTIONEERS, INC., a division of B-I-F Industries, Inc., Providence, R. I., has appointed the Harris Pump & Supply Co., Brady and Sidney Sts., Pittsburgh, Pa., a regional distributor for the extensive line of Proportioneers chemical and proportioning pumps. Harris will serve West Virginia, southeastern Ohio and western Pennsylvania.

Big Mobile Radio with Transistorized Power

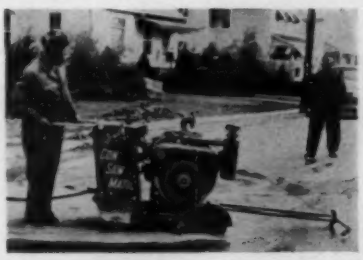
Only a year ago Motorola's most powerful two-way transistor-powered mobile radio was the 20-25-watt set; a 100-watt is now announced. The equipment includes 6-watt radiophones in the 144-174 MC band and 50- and 100-watt units in the 25-54 MC band. Four transistors are used in the 100-watt radio to replace both the vibrator and the dynamotor. They permit housing the 50-watt low frequency unit in a 10-inch wide housing instead of in the usual trunk-mounted 15-inch wide housing. Similarly, its weight has been reduced 36%, from 74 to 47 pounds.

For details, write to MOTOROLA COMMUNICATIONS & ELECTRONICS, INC., DEPT. T, 4501 W. AUGUSTA BLVD., CHICAGO 51, ILL., or you may use the Post Card on the insert following Page 54. Circle No. 770.

36-HP Self-Propelled Concrete Saw

Openings in concrete and asphalt streets are quickly and economically made with Clipper's new 36-hp self-propelled concrete saw, Model C-362.

The unit's dual balance design maintains constant and adequate weight over the blade at all times during the sawing operation. Its heavy-duty transmission, with abrasive coated drive wheels, transmits power to the rear wheels for forceful forward thrust. Positive ball bearing screw feed assures depth control. Six steel cable V-belts transmit full power to the blade. The manufacturer reports that with the



The Clipper Model C-362, using a CD-68 Diamond Blade, begins a trenching operation in Wappinger Falls, N. Y.

Bathey

SURVEY MARKING and IDENTIFICATION EQUIPMENT

BATHEY SURVEYOR STAKES AND IDENTIFICATION CAPS

- A Permanent Marker
- Professional Advertising
- Dip Needle Response
- Five Lengths 3", 18", 24", 36", 48"

STANDARD CAPS

MBC

BENCH MARK

Permanent Solid Brass Marker for Setting in Concrete

HEAD 2¼" Dia. ⅛" Thick

B-13

WRITE FOR LITERATURE

BATHEY MFG. CO.

100 S. MILL STREET PLYMOUTH, MICH.

IF ONE OF YOUR PROBLEMS IS

INSECT CONTROL

. . . THIS SHOULD INTEREST YOU!

. . . an insecticidal fog generator that—

- Outsells all other types in Florida and Texas
- Is in regular use at U. S. Air Force Bases
- Weighs just 100 lbs., yet does work of much heavier machines.

Dyna-Fog

Simple to use . . .
Potently effective
Widely sold . . .

Dyna-Fog merits your investigation.

$1295.00

NOTE: Ask about our 19 lb. Dyna-Fog Jr. for that specific insecticidal fogging job.

EXTRA!

Our "Machine Loan" Program provides "sub" unit, should yours ever be out of action for servicing.

Write for Complete Information!

Curtis

AUTOMOTIVE DEVICES, INC.
Dyna Products Division

P.O. Box 232-B
Bedford, Indiana

C-362 one man can lift up, line up and saw instantly in any direction that is required to meet the needs of a particular job.

For additional information on the Model C-362, write directly to CLIPPER MANUFACTURING COMPANY, SUITE 102, 2800 WARWICK, KANSAS CITY 8, MO., or, if you prefer, you may use the Post Card on the insert following Page 54. Circle No. 750.

You've Got to 'Dig for the Oyster'

This, in essence, is the message Ford Tractor distributors gave a Sherman Products, Inc., sales team headed by William F. Beckman, vice president and marketing director, at a series of round-table sales conferences held in Atlanta, Chicago, Kansas City, Philadelphia and San Francisco. The opinion referred to business in 1958, particularly that of the earth moving, materials handling and soil preparing equipment market with which Sherman is concerned.

Mr. Beckman is in accord with the idea that "there will be plenty of business for those who dig for it" and feels that ingenuity, determination, hard work, and confidence will bring desired results. Reflection of this conviction is seen in the aggressive sales campaign being carried out by SHERMAN PRODUCTS, INC., ROYAL OAKS, MICH., to find new markets for its products and to show and demonstrate its equipment. Coinciding with this activity is that of product education, the importance of which was also brought out at the round-table discussions.

Good Roads Machinery

"HANDY" SPREADER

for Sand • Gravel • Cinders • Salt

Automatic Transmission operates forward or reverse without shifting gears.

Spreads aggregate from powder fine to 3" depths.

The Good Roads "Handy" aggregate spreader is designed for economical spreading of sand, slag, stone, gravel, cinders, calcium chloride, etc., up to 1" in diameter.

The "Handy" spreader provides the most accurate and smooth spread possible. Exclusive keyboard design prevents streaking and eliminates hand patching by permitting large foreign objects to pass through. Spread is positively controlled by micrometer adjustment to the desired depth—once set, it remains constant for the entire job. Quick Shut-off control starts and stops material flow instantly.

Location of all controls on left-hand side of hopper permits efficient one-man operation and hitching. Adjustable standard truck hitch fits any size, model or make dump truck and adapts to any width spreader. This spreader, ideal for parking lot, street, road, highway construction and maintenance, is available in 6 models for spread widths of 8, 9, 10, 11, 12, and 13 feet. Narrower widths can be accomplished by use of block-off plates.

For complete details see your local distributor, or write to:

Good Roads Machinery

GOOD ROADS MACHINERY Corp.

MINERVA, OHIO

SCAVENGER • LEAF COLLECTORS • LEAF LOADERS • MULCH-VAC SWEEPERS

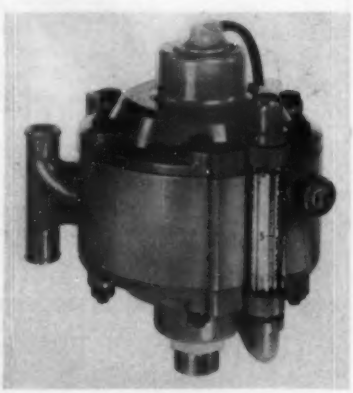
ASPHALT AND AGGREGATE SPREADERS • SNOW PLOWS • ICE CONTROL SPREADERS

Dorr-Oliver Opens New Midwest Office

DORR-OLIVER INCORPORATED, STAMFORD, CONN., has opened a new midwestern sanitary sales office at 4117 Broadway, Kansas City, Mo., to provide better service for engineers and consulting firms in the states of Kansas and Missouri. Transferred from the company's Southeastern Division, Atlanta, Ga., to head the Kansas City office is Joseph V. Swift. Sales Engineer Lee Roy H. Walter has also been assigned to the new office.

Palm-Size Chlorinator for Swimming Pools

This new Super-C chlorinator, designed by Fischer & Porter especially for swimming pools, is so compact that it is said to be small enough to be held in the palm of the hand. Equipped with a direct-reading flowmeter, it can meter up to 50 ppd of chlorine over a full 10:1 range. Maxi-



mum capacities of 10 or 25 ppd may be obtained by substituting another flow tube.

The minute unit reportedly provides protection of the same quality as that given by larger chlorinators. It may be mounted directly on the wall, tank or pipe stand; no panel is needed.

Recreation officials and swimming pool personnel may obtain additional information on the Super-C from the manufacturer, FISCHER & PORTER CO., 581 JACKSONVILLE ROAD, HATBORO, PA., or may use the Post Card on the insert following Page 54. Circle No. 748.

Marking Machines for Floors and Lots

An extremely simple way to find out what Florline roll-on marking machines will do — and how — is to write for a new check sheet.

What do these machines weigh? Twenty-eight pounds for the 1½-gallon size, 40 pounds for the 5-gallon. Are they easy to clean? Yes. Can curved and skip lines be made? Yes. Is there a mist hazard? No. How near to a wall can lines be painted? Within ½ inch.

Twenty-four questions are answered. For a copy of "How to Select Marking Equipment", write H. C. SWEET CO., POST OFFICE BLDG., NEW HUDSON, MICH., or you may use the Post Card on the insert following Page 54. Circle No. 744.

Lightweight Hauler Has Multiple Muncipal Uses

Less than one cent a mile. That's the cost of operating a Cushman 780 Truckster, the versatile light hauling vehicle with multiple municipal application.

Powered by a Cushman Husky 4-cycle engine that delivers 7.95 hp at cruising speeds, the Truckster can handle an 800-pound payload. Maximum speed is 36 miles per hour, and it delivers as much

A Cushman 780 Truckster outfitted for parking meter service in Lincoln, Nebr. The fiberglass cab shown here is available as an optional feature.

LOWEST COST SPACE CONTROL THROUGHOUT THE COMMUNITY

TIFA

Mosquitoes, Flies and Other Insect Pests Destroyed on Contact

On the dump, over pools, in suburbs, play areas, stockyards, TIFA gets the kill every time . . . at the lowest operating and maintenance cost. TIFA rapidly covers large areas with true clean fog, permeates smallest crevices, envelops and destroys all insect pests. This efficiency with newest or older type insecticides, gives you a better insect control program for your community.

TODD INSECTICIDAL FOG APPLICATOR

BEST by TEST for over 13 years in Community Fly and Mosquito Programs

Carrying underwriters' Listing Seal MH 4162

Write for illustrated folder with details and official comments.

PRODUCTS DIVISION

TODD SHIPYARDS CORPORATION

HEADQUARTERS: Columbia and Halleck Streets, Brooklyn 31, N. Y.

PLANT: Green's Bayou, Houston 15, Texas

When measuring through the discharge end of a submerged throat or conduit, DEPEND ON . . .

Sparling

WATER WORKS INTAKE METERS

Sparling Water Works Intake Meters are designed to provide efficient and economical service. Ideal for a large volume of water flowing through the discharge end of a submerged throat or conduit. The very simplicity and variety of models available permit wide application . . . often using the existing headwalls or supports. Propellers may be plastic or stainless depending upon installation and use. Maintenance is simple. Available with Sparling's new Indicator-Totalizer 245. Drop pipes can be any length. Ideal for use in telemetering systems.

10" to 72".

OTHER OFFICES:

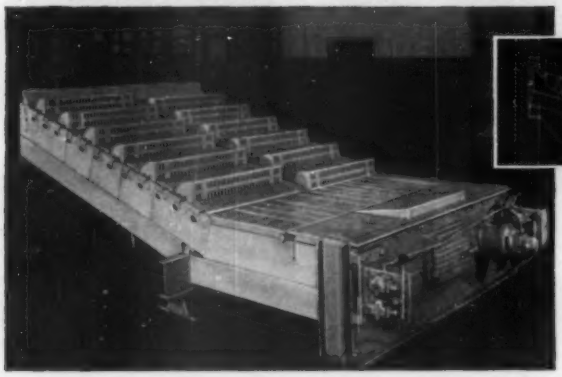
Atlanta 3 • Chicago 4
Cincinnati 2 • Dallas 1, Texas
Denver 6 • Kansas City 6, Mo.
Roselle, N. J.
San Francisco 24 • Seattle 99
Toronto, Can. • Romford, Eng.

☐ Yes! We are interested in increasing our metering efficiency. Send us more information . . . no obligation, of course.
☐ Also send information on Sparling's line of Water Control Equipment.

Name .....
Company .....
Address .....
City ..... Zone .... State .....

Send to: SPARLING METER COMPANY
239 N. Temple City Blvd., El Monte, Calif.

AE INCINERATORS HAVE
EXTRA LARGE DUMP-PLATES



One of the several Incinerator Stokers being shop-tested, with temporary piping, before shipment.

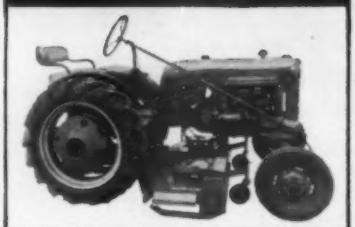
Note very large ash-discharge plates for quick removal of non-combustible materials.

AN EXCLUSIVE FEATURE of the AE Incinerator grates is the extra large dumpplate area. The possibility of clogging is reduced to the absolute minimum when large objects pass through it... American Engineering's years of experience in stoker design and construction is your assurance of trouble-free, economical performance.

Write for full details, today.

AMERICAN ENGINEERING COMPANY
DEPT. S-108, WHEATSHEAF LANE & SEPVIVA ST., PHILADELPHIA 37, PA.
Canadian Subsidiaries: Affiliated Engineering Corporations, Ltd., Montreal, P. Q.... Bawden Industries Ltd., Toronto, Ont.

Fastest, Cheapest Way to Mow Big Lawns



This 5 Ft. Lawn Special Wood's Rotary on a Farmall Cub makes an ideal outfit for mowing tree-thick lawns as well as big unbroken areas. So maneuverable it can even do most trimming jobs. Excellent for mulching leaves and clipping weeds. Rugged 42" models shred brush also.

25 MODELS AVAILABLE—42" to 114" Cut

42" under-mounted for Farmall Cub, Lo-Boy, Super A, 100, 130 and A-C G. 42" rear-mounted for Fast-Hitch Cub and Lo-Boy. 60", 61" and 80" rear-mounted for larger Fast-Hitch Farmalls (using 3 pt. adapter), all standard 3-point hitch tractors (Ford, Ferguson, Oliver Super 55, etc.), and 60" for A-C D14, D-17 and WD-45. 60", 61", 80" and 114" draw-bar pull-types for any 2, 2-3 and 3-4 plow tractors and Jeeps. 80" offset model (2-3 plow) for working under low trees. All have free-swinging blades.

SEND POSTCARD FOR FREE FOLDER
WOOD BROTHERS MFG. COMPANY
54804 South 4th St., Oregon, Illinois

Traverse City Iron Works
Traverse City, Michigan

Manufacturers
Fire Hydrants and Valves

A.W.W.A. Specifications for Municipal and Industrial Work
Factory Mutual and Underwriters Approved for Automatic Sprinkler Installations.

Mechanical Joint Fittings
Bell and Spigot Fittings
Flanged Fittings
Special Fittings
Fabricated Pipe for Pumping Station and Sewage Treatment Plants

Purchasing

as 50 miles to the gallon. It is shaft-driven, handles easily, and because of its short turning radius—80 inches—maneuvers easily in and out of closely confined areas.

Adaptable to parking meter service, street cleaning operations, golf course maintenance and garbage collection, the 780 Truckster is available in a wide variety of body styles to fit specific needs. Additional information may be obtained from CUSHMAN MOTOR WORKS, INC., LINCOLN, NEBR., or you may use the Post Card on the insert following Page 54. Circle No. 753.

Mixed-Flow Volute Pumps

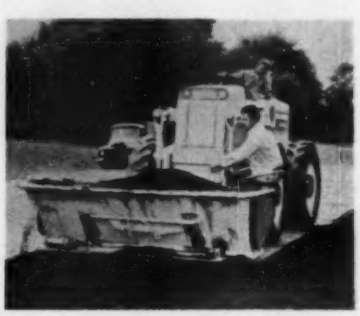
Design and construction details of horizontal and vertical mixed-flow volute pumps, applicable for sewage disposal, drainage, flood control, irrigation and raw water pumping, are discussed in a new catalog from Economy Pump Division, C. H. Wheeler Manufacturing Company.

These low- and high-head units are built in sizes of 12 inches through 72 inches, and in capacities of 3,000 to 150,000 gpm. They can pump against heads up to 180 feet. For additional information, and for *Catalog* F-102, write C. H. WHEELER MANUFACTURING COMPANY, ECONOMY PUMP DIVISION, 19th and LEHIGH AVE., PHILADELPHIA 32, PA., or you may use the Post Card on the insert following Page 54. Circle No. 746.

Blacktop Spreader Attachment

A Blacktop spreader attachment has been designed exclusively for The Frank G. Hough Co. models, HU, HH, and HO Payloader tractor-shovels. Front-mounted and interchangeable with bucket, the spreader attachment provides an economical unit that lays down hot or cold mix asphalt in strips up to 8 feet in width in a single pass.

When attached to the Payloader, the



spreader can work in confined areas where pavers and trucks are unable to operate. It may be employed to place new pavement and to resurface or patch streets, driveways, alleys, sidewalks, playgrounds, parking lots, etc.

Spreader operations are hydraulically controlled, and conveniently arranged levers give the operator fingertip control of the throttle, main feed gate, width adjustment (to 8 feet) and thickness of spread (up to 6 inches). A separate air-cooled gas engine provides pressure for the hydraulic motor which drives the twin 8-inch diameter augers and all hydraulic control cylinders. Other spreader features include a 2-cubic yard capacity hopper and independent suspension on four pneumatic tires.

For complete information and detailed specifications of this new spreader attachment, write THE FRANK G. HOUGH CO., 710 SEVENTH AVE., LIBERTYVILLE, ILL., or you may use the Post Card on the insert following Page 54. Circle No. 763.

Stanco Moves to New Quarters

STANCO MFG. & SALES CO. has moved into completely remodeled quarters at 1666 NINTH ST., SANTA MONICA, CALIF. The company, formerly located at 1931 Pontius Ave., West Los Angeles, Calif., is national distributor for Hiab hydraulic truck cranes, Flygt portable submersible drainers and Pionjar portable rock drilling and breaking machines, all of Swedish manufacture.

Aring to Handle the Michigan Line

The Aring Euipment Company, Inc., Milwaukee, Wis., has been appointed to sell and service Michigan tractor shovels, dozers, scrapers and excavator cranes—all products of the Construction Machinery Division of Clark Equipment Co., 2495 Pipestone Road, Benton Harbor 2, Mich.

The 18-year-old Aring company with branch offices in La Crosse and Madison, Wis., is headed by C. W. Aring, Sr., and will handle the Michigan line in the entire State of Wisconisn.

Insulated Curb Box

To combat the problem of corrosion, THE OPELIKA FOUNDRY COMPANY, OPELIKA, ALABAMA, has recently designed a cast iron service or curb box with the bell end housing made of butyrate plastic material.

The plastic cock housing being of nonmetallic material and inert by nature, galvanic and electrolytic corrosion is eliminated.

The curb cock and pipe line is completely insulated from the cast iron box.

Where Buffalo Type curb boxes are now in use, the parts of the new "Opelika" Box will interchange, making additional inventory unnecessary except for the bottom section.

Full details can be obtained by writing directly to the company or by using the Post Card on Page 54. Circle No. 764.

Self-Propelled Trencher

Municipalities and utility companies will find that installing underground wiring, gas services, water lines, telephone services, street lighting and signal systems can be accomplished more easily and more quickly when a Model C Ditch Witch is employed to "prepare the ground." This self-propelled light trenching machine will dig a trench 3, 4½ or 6 inches wide to depths of 2 feet, at a trenching speed of about 4 feet per min-

KA-MO FOR HIGHER PROFITS AND LOWER CONSTRUCTION COSTS

VERTICAL BORING

for—Pre-boring for Piling—
Drainage Installations — Power,
Guard Rail or Post Holes—Locating
Gas or Water Leaks—Shafts

ANGULAR BORING

for—batter piling—anchor holes
THRU—frost—hardpan—gumbo—Sand
shale—
limestone—
other mineral
formations

HORIZONTAL BORING

for Water, Sewer, Oil and Gas Pipelines—
Gas and Electric Services—Tunneling—
Electric or Telephone Cable

UNDER—railroad beds—streets—highways—
lawns—airport runways
With or Without Casing and
NO interruption of traffic

EASY TO SET UP • PORTABLE • EASY TO OPERATE

POWERED BY

AIR	HYDRAULIC	ELECTRIC	GASOLINE
4 H.P. to 18 H.P. or in dual or triple drives to 45 H.P.	11.6 H.P. to 50 H.P.	1.9 H.P. to 100 H.P.	Engine Drive

DRILL SIZES—2½" to 48" diameter and lengths to meet your needs.

WRITE TODAY—LET US TELL YOU HOW WE CAN REDUCE YOUR DRILLING COSTS

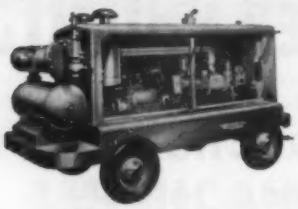
KA-MO TOOLS, INC.

EARTH BORING EQUIPMENT

1845 SOUTH 55th AVE. • CICERO 50, ILL.

Note full size tool boxes, retractable dolly, spring towing eye.

Work moves faster with a Jaeger Rotary



Other sizes to 600 cfm

At slower operating speeds than other rotaries (less fuel, less wear) the Jaeger "125" gives your crews constant 100 lbs. pressure for all demands up to 125 cfm. Keeps full wallop in two 80 lb. breakers. Ask your Jaeger distributor to show you how quietly and evenly it runs — or send for Catalog JCR5.

THE JAEGER MACHINE COMPANY • 505 Dublin Ave., Columbus 16, Ohio

PUMPS • MIXERS • TRUCK MIXERS • SPREADERS, FINISHERS • LOADERS

The Simple, Inexpensive, Rugged, Dependable means of Lifting Sewage

KOMLINE-SANDERSON *Pneumatic* Sewage Ejectors

Illustrated: Cast iron duplex 250 GPM system. K-S Ejectors are available in cast iron or welded steel in single or duplex design.

The Komline-Sanderson Ejector:

Eliminates complex and intricate piping. Provides economical operating features. Offers electric or entirely pneumatic control system.

Write for catalog giving layout dimensions, piping diagrams and helpful information in the design of pneumatic ejector stations. Bulletin No. KSM-2 available on request.

MECHANICAL EQUIPMENT DIVISION

KOMLINE-SANDERSON ENGINEERING CORPORATION

103 Holland Avenue, Peapack, New Jersey

The Charles Machine Works Model C Ditch Witch, self-propelled lightweight trencher, simplifies underground service installations.

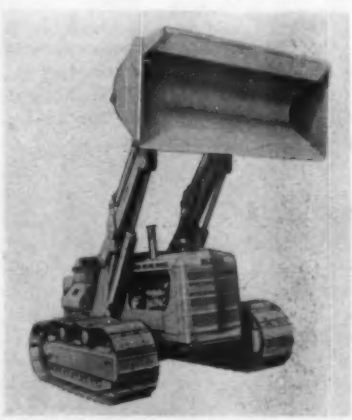
ute. It is completely mobile under its own power, easily handled on the job by one man, and since it is only 34 inches wide is small enough to go through a standard-width gate for work inside fence yards.

The Model C is powered by a 7-hp air-cooled engine and sells for $625 f.o.b. the factory. For complete description and applications, write THE CHARLES MACHINE WORKS, INC., 617 B ST., PERRY, OKLA., or you may use the Post Card on the insert following Page 54. Circle No. 755.

Oliver Introduces New Loader

This loader with 2¼-yard bucket capacity is a new offering of the Oliver Corporation. Called the OC-156, it is reported to be a completely integrated unit, matched to the full capabilities of the 110-hp tractor on which it is rigidly mounted.

Full visibility and low center of gravity for quicker, fuller loading is made possible by low-profile design. Length of track on the ground of 87⅛ inches combines



with a 2,788-square inch contact area to give extra stability for fast, heavy loading for which the OC-156 is especially suited.

In keeping with its fully protected design, the hydraulic pump has been located under the radiator and is engine-mounted. There are no hose connections to come loose, no exposed PTO. Deep, full-length steel guards protect the six lower track wheels.

For additional information on the OC-156, write THE OLIVER CORPORATION, INDUSTRIAL DIVISION, 19300 EUCLID AVE., CLEVELAND 17, OHIO, or you may use the Post Card on the insert following Page 54. Circle No. 759.

Figure Work Automatic in Billing and Ordering

A small keyboard inserts all numerical information. Computing is carried on within the electronic gate (left). The relay gate (right), transmits instructions from an internally contained program tape, and the electric typewriter automatically prints out the results. The work of the calculator is indicated by the checked figures on the invoice.

IBM has announced the 632 Electronic Typing Calculator, a new computer designed for the important application—to both small and large cities—of invoice and order preparation. In addition to its automatic calculating abilities, it can automatically type out selected daily totals for review by top officials.

The calculator consists of an electric typewriter, a ten-key companion keyboard, a magnetic core "memory" within the computer unit, and a program reading device. It can extend, carry totals, compute taxes, subtract discounts, position decimals, which are automatically typed out.

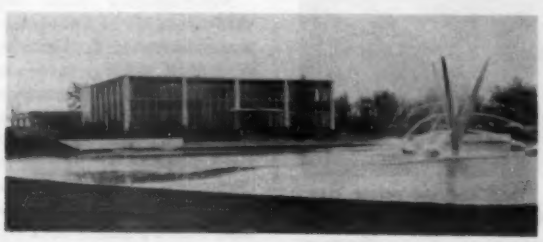
H. W. Miller, IBM vice president and general manager of the Electric Typewriter Division, said, "Twenty-five years ago electricity was applied to the typewriter. Now, IBM has integrated electronic calculating and electric typing."

For additional information, write to INTERNATIONAL BUSINESS MACHINES, 545 MADISON AVE., NEW YORK 22, N. Y., or you may use the Post Card on the insert following Page 54. Circle No. 758.

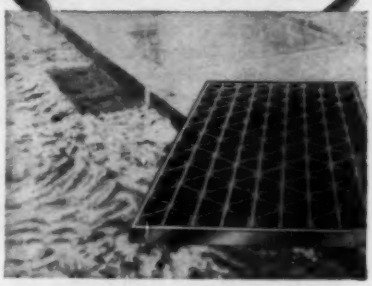
Badger Meter Moves to New Home

Generous use of color is apparent in the new home of BADGER METER COMPANY, MILWAUKEE, WIS., producers of liquid measuring devices. The two-story, 42,000-square foot administration building which is set back about 75 yards from the highway, behind an artificial lake, is located on a 56-acre site at 4545 West Brown Deer Road. A horse-shoe shaped drive leads up to the entrance, and on either side of it are parking areas for visitors.

The lake is both functional and decorative. Its 2½-million gallons of water are aerated by a fountain, and are used in a



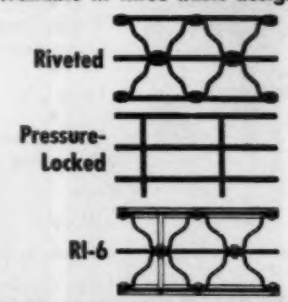
FLOODED HIGHWAYS HINDER TRAFFIC



OLD heavy cast iron draingrates, averaging at best 40% clear opening, often fail to carry off rain water fast enough during heavy downpours, resulting in flooded highways—particularly at underpasses. Also, cracked draingrates must be replaced.

With open steel mesh draingrates, larger clear openings reduce the likelihood of flooded highways considerably. Irving "Dryway" Draingrates are 75% open for greater drainage and are made of steel bars on edge, not subject to cracking.

Available in three basic designs:



Write for brochure on "Dryway" Draingrates Self-maintaining, Lightweight, Economical, Safe

IRVICO

IRVING SUBWAY GRATING CO., Inc.
Originators of the Grating Industry

Offices and Plants at
5030 27th St., Long Island City 1, N. Y.
1830 10th St., Oakland 23, California

Purchasing News

Western Parking Gate in combination with hourly rated "Parkontrol" Time-Dater-Imprinter Equipment.

Over 700 Western Parking Gates in more than 100 cities have proved that off-street parking can be handled automatically at a substantial profit. Positive control—Western Parking Gates are electrically operated to give complete flexibility, dependability and ease of operation in any city parking facility.

Key, electro-card, coin and token-operated gates, separately or in combination, provide the answer to municipal lots operated on a flat fee arrangement.

"Parkontrol" Time-Dater-Imprinter Equipment available for operations involving hourly rate and validation parking. Low labor costs, low initial equipment cost and simple installation make them a wise investment for any city.

EXCLUSIVE FEATURES—Western, builder of more than 12,000 railroad and highway crossing gates, has engineered the "Lot Full" sign, electric opening and closing treadles, double key controls for night and day parking, electro-cards with period changes, push-button remote controls and automatic counters.

WRITE TODAY for information on various parking lot control plans available for your application.

8376

WESTERN INDUSTRIES INC.

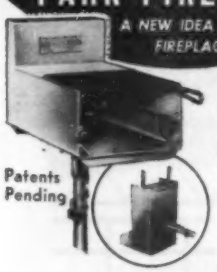
Electric Parking Gate Division

2430 South Ashland Avenue, Chicago 8, Illinois

CANADA: Cameron, Grant Inc., 465 St. John Street, Montreal 1, Quebec

KAY PEDESTAL PARK FIREPLACE

A NEW IDEA IN PARK FIREPLACES



Patents Pending

Theft Proof
•
Sturdy Steel Construction
•
Long Life
•
Convenient Operation

Model A-14 shown

Model B-14 all grill top

- Low Installation Cost
- Adjustable Grill with Steel Handles
- High Position for Wood Low for Charcoal
- Waist High Cooking Height
- Padlocks to Post
- Large Cooking Area - 14" x 21"
- Two Firebox Weights Available
- Swivels for Best Draft Control
- Easily Removed for Storage

Attractive discounts for quantity orders.

Write TODAY for literature and prices.

KAY Enterprises — JANESVILLE, IOWA

Why mar your streets with costly, needless patches?

A little of your budget money is far better invested in a GREENLEE Hydraulic Pipe Pusher than another needless street repair job! Teamed with a portable power pump or operated by hand, this GREENLEE tool pushes pipe under streets, walks, elevations, eliminates extensive ditching and repairs, quickly pays for itself. Model shown pushes 3/4" - 4" pipe. Second model available for larger pipe and concrete sewer. Write for literature.

GREENLEE TOOL CO

2024 Columbia Avenue

Rockford, Illinois

Purchasing

constant circulating system to cool the compressor of the building's heating and ventilating system. The water is also used to test Badger meters and for fire protection. At night, underwater floodlights blanket the lake with color.

The groundfloor level of the building includes facilities for accounting, tabulating, personnel, purchasing, engineering, research and development, a cafeteria and the reception area. The latter is two-stories high, and is lined on one side by floor-to-ceiling windows, on the other by a mural depicting a Badger meter in use. The mural stretches across the second floor balcony, and is the work of Edmund Lewandowski, director of the Layton School of Art.

The lower level is devoted to a large lounge and recreation area for employees, storage space and heating and ventilating units. The building is completely air-conditioned and is fire-protected by an automatic sprinkler system. Eventually, the new administration building will house all Milwaukee Badger Meter Company operations.

Sparling Opens Denver Office

Opening of a new sales and service office at 1690 Milwaukee, Denver 6, Colo., has been announced by Ray C. Sparling, president of Sparling Meter Company, El Monte, Calif. This office will service Colorado, New Mexico and Wyoming and the western halves of North and South Dakota and Nebraska. It will be under the management of Howard Hatfield, formerly associated with North American Aviation and Kim Lighting and Manufacturing Company.

High-Powered, Two-Way Radio Base Stations

Now available from the General Electric Company are high-powered, two-way radio base stations, specifically engineered to help municipal police, sheriffs' offices, state police and town officers cover larger geographical areas with communications systems.

Newly-designed station amplifiers, providing from 250 to 330 watts of power and greatly increasing the signal sent from the dispatcher's position, have been developed for use in all three communications bands.

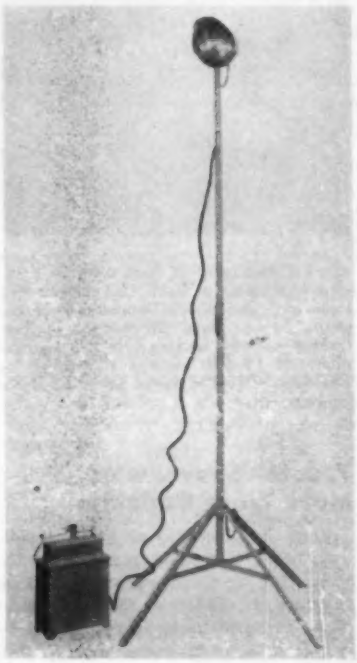
In municipal applications, high-band licensees will probably find the greatest need for this type of equipment. In high band, the equipment is designed to produce up to to 330 watts of power. Three hundred thirty-watt equipment is also available in

low band; for UHF band, 250-watt units are used.

For additional information, write the GENERAL ELECTRIC COMMUNICATION PRODUCTS DEPT., SYRACUSE, N. Y., or you may use the Post Card on the insert following Page 54. Circle No. 778.

New Utility Light

Added to the line of Escolite electric flasher warning lights is a new utility light that is well suited to the needs of municipalities, street crews, power and telephone utilities—or wherever an exceptionally bright light is needed for standard or special applications.



Rugged and shockproof, this light can be used in all types of weather. It has a rustproof, heavy die cast head, a waterproof phosphatized neophrene sealed case, and a double battery that is said to give more battery life yet draw less battery current. Lens head sizes are 7 inches and 4 inches; available lens colors are red, amber and clear.

This new utility light is reported by the manufacturer to be brighter and more economical than any other utility light. It is furnished with two flag holders welded to a telescoping collapsible stand that is adjustable to 8 feet.

For additional information, write ELECTRONICS SPECIALTIES CO., BATAVIA, ILL., or you may use the Post Card on the insert following Page 54. Circle No. 775.

Velocity-Type Totalizing Flow Meter

Low head loss, high degree of accuracy and adaptability help make the Propeloflo propeller-type totalizing flow meter an ideal instrument for metering water and other liquids in municipal and industrial applications.

Standard models of the Propeloflo are available for operating conditions up to 150 psi and 150° F.; those with higher ranges may be had on special order. Accuracy of these units is said to be within ±2% of actual flow rate throughout rated operating capacity, and the Propeloflo will continue to register with normal accuracy at temporary flow rates up to 150% of rated capacity.

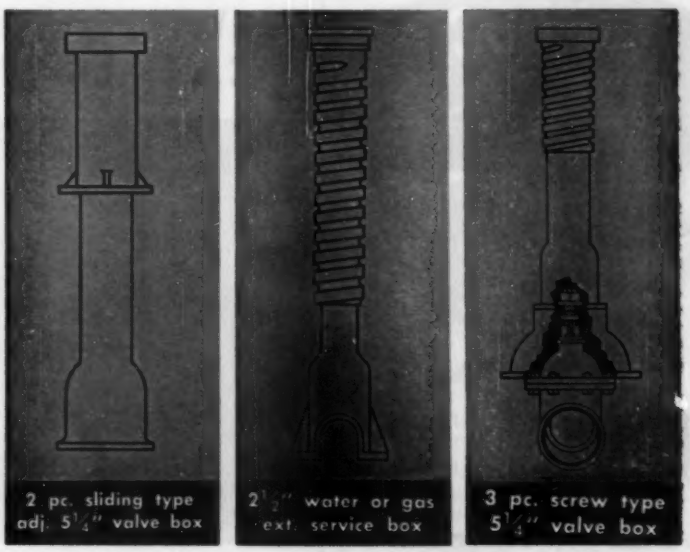
Because of its continuous flushing system, metering of many slurries and corrosive liquids is possible. Accessories permit adaptation for remote reading and recording over any distance, and for providing flow proportional control of dry or liquid

BUFFALO PIPE & FOUNDRY

BUFFALO MUNICIPAL CASTINGS

are available in every size and style!

No matter what size, shape or style municipal casting you may desire — you're practically sure to find a "Buffalo" casting to serve your needs. Or, where desired, castings may be made to your own specifications. Whether you need valve, service or roadway boxes, meter boxes, manhole rings and covers or other municipal castings, you'll find all "Buffalo" castings designed for service and dependability.



Prompt quotations given on all your standard or special gray iron or non-ferrous castings.

Write or wire Dept. J for Bulletin M11.

SINCE 1930
BUFFALO PIPE & FOUNDRY CORP.

BOX 55 — STATION B DE 6764 BUFFALO 7, N. Y.

keep'em on the job with IGLOO

—on the spot cool water pays off on the resurfacing job at the Houston International Airport

More men on the job more of the time is the result of adding IGLOO water coolers on your construction jobs. Workers like IGLOO best because—
• It's CRYSTALINED, keeps liquids pure • It has a round sanitary bottom, easy to clean • It has a recessed dripless spigot • Its insulation qualities are 18% greater • It's stronger, stays around longer

keep 'em on the job with IGLOO

ask for it by name IGLOO CORPORATION
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HANCOCK
REG. U.S. PAT. OFF.
PARKMASTER

BEST by TEST
IN THOUSANDS OF PARKS

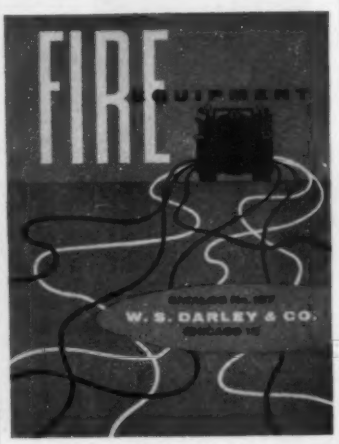
YOU'LL LIKE:
- Low Installation Cost
- Easy Removal of Body for Storage
- Padlocks to Post
- Quick Ash Removal from Either End

PATRONS LIKE:
- Large 15" x 22" Actual Cooking Surface
- Positive Draft Control
- Wide Utensil Shelves
- Swivel Mounted Body

Send for complete specifications and prices

HANCOCK IRON WORKS
50 W. Pike Street, Pontiac, Michigan

NEW CATALOG!



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CHICAGO 12

feeders. Venturi body design and integral straightening vanes assure steady flow to the low-friction propeller, which turns in precise proportion to flow rate with only five diameters up stream straight piping required.

Operation, installation and functions of the Propeloflo meter are fully explained in *Bulletin* 380-K4B. For your copy, write BUILDERS-PROVIDENCE, INC., a division of B-I-F INDUSTRIES, INC., PROVIDENCE, R. I., or you may use the Post Card on the insert following Page 54. Circle No. 776.

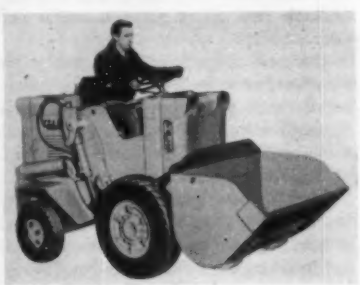
Tractor Shovels Aid NYC Ice Control Operations

A recent snow storm caused New York City's Department of Sanitation to move into high gear to keep city streets free from ice. One of the Department's twenty-six 2-cubic yard Model 154 Trojan tractor shovels, assigned to ice control operations, loads salt into a truck at the Gansvoort Street incineration plant at the Hudson River.

Tractor Shovel with 25% More Work Capacity

Entry into the field of bulk materials handling by Yale Matterials Handling Division, The Yale & Towne Manufacturing Company, is marked by the development of a new small tractor shovel with a reported 25% greater work capacity than units now available in this size.

Called the Yale Y-18, the unit has a 2,500-pound carrying capacity (500 pounds more than similar units on the market) and a full 6-foot high dumping clearance (one foot higher than existing models). A fully automatic Yale torque transmis-



sion eliminates clutch pedal and manual gear changng and not only speeds operation, but lessens the chance of load spillage by giving the unit smooth operating characteristics.

The stability factor has been given considerable attention in design of the Y-18, for despite its high dumping clearance, the tractor shovel is only 117 inches long with bucket in tip-back position. Also, weight distribution on the drive and steering axles is virtually 50-50. Articulation of up to 4 inches on the steering axle further improves stability, as does a front wheel tread of 41½ inches and a rear tread of 40¾ inches.

Forty-five degree bucket tip-back at ground level gives the Y-18 superior loading action and low level carrying position. Bucket arms do not rise above the side panels of the operator's cockpit, even at high dumping level, and so protect the operator from possible injury. Loader arm linkage automatically returns the bucket to a loading position on its downward swing; this speeds cyclic rate of operation.

Power for tthe Yale-18, which is available for use with both gasoline and LP-Gas fuel, is delivered by a 6-cylinder Model 30 Chrysler industrial engine rated 66 hp at 2,000 rpm. Acceleration is rapid—0 to 8 miles per hour in 3½ seconds; its top speed of 13 miles an hour is said to be the fastest available.

Hydraulic brakes have been sealed against brake failure from loose, powdered materials, often found where tractor shovels work. And the hydraulic system, the generator and distributor have also been sealed to keep dirt out. Dual air cleaners shield the carburetion system.

As an aid to servicing, the transmission pump is mounted in line with the generator in an accessible position.

The Yale Y-18 has a 4-foot wheelbase, a turning radius of 6 feet, 7 inches and a 7½-inch underclearance. Steering wheel tire size is 6:00 x 9; drive wheel tires are 7:50 x 15, which permits a wide selection of tread and ply designs to suit individual conditions. Laminated or mine cushion tires, as well as pneumatics, can be used.

The operator's compartment on the Y-18 is designed to provide maximum leg, arm and hip room. The operator's seat is adjustable 3 inches forward and backward. Direction controls are conveniently positioned and arm and bucket controls are easily accessible.

The Y-18 is being introduced with a range of bucket capacities from 10 to 27 feet.

For additional information, write THE YALE & TOWNE MANUFACTURING COMPANY, 11,000 ROOSEVELT BLVD., PHILADELPHIA 15, PA., or you may use the Post Card on the insert following Page 54. Circle No. 774.

Vacuum-clean Your Gutters

the EASY, LOW-COST "Litter-Getter" Way

If trash-cluttered gutters is your problem you have a mess that's plain for all to see . . . unsanitary; bad publicity. There is something more you can do about it.

90% of your street litter is traffic-whipped or dropped in your gutters . . . within 24" of the curb. It's impractical, often times impossible, to use your big, wide power sweepers to pick up this narrow trail of litter. You can **get this gutter litter fast** . . . and cheaper, too . . . during business hours **with a Tarco "Litter-Getter".**

It will snap up: **newspapers, paper cups** and **wrappings, pop bottles, tin cans** and **fine litter.** Blows this trash into its own built-in, dirt-filtered litter receiver. These powerful, air-cooled, gasoline engine driven vacuum cleaners come in various designs . . . specially engineered to solve any litter problem you may have. So, when your street starts telling the trash-cluttered story then it's time to: **think "Litter-Getter", see "Litter-Getter",** and **try "Litter-Getter".**

Tarco "Litter-Getter", model GJS-1 pictured above . . . also known as **"Gutter-Vac"** . . . is specially designed for vacuum cleaning street gutters. Mounted on a "Jeep" . . . for 1 or 2 man operation . . . the "Gutter-Vac" is a complete self-contained unit. Gutter litter is sucked up and blown into a large, heavy, burlap bag located in a dirt-filtered compartment. This unit is small enough to flow with traffic and do its clean up work as it goes . . . **all for about 20c per curb mile.** The "Gutter-Vac" is a handy, nimble unit that will gutter-clean where and when big sweepers can not work. **Ask about Tarco "Litter-Getters" now.**

TARRANT Manufacturing Company
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193 Emmet Street NEWARK 5, N. J.

Purchasing

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MAXI-POWER Sewer Cleaning Unit

Note the STIFF LEGS—HYDRAULIC—quickly adjustable to compensate for uneven ground.

ONE unit consists of:

TWO machines, located at the ends of the sewer section to be cleaned.

THREE models (500, 501 and 502) each with 3-speed transmission, enable you to get the exact power and line speed you need:

	1st gear	2d gear	3d gear
#500	9500 lbs.	7500 lbs.	6000 lbs.
#501	11000 lbs.	9000 lbs.	7000 lbs.
#502	15000 lbs.	12000 lbs.	9000 lbs.

FOUR facts to consider:

1. There's a unit exactly right for any city, from the largest to the smallest.
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WINCO MODEL 20581452D-1M 2500 watts, direct drive, 115 volts, 60 cycle A. C. Lightweight. Carrying Cradle optional.

After starting, plant automatically idles, until load of 75 watts or more is applied. Automatic CONSERV-er brings engine to full power when tool is turned on, reduces engine to idling speed when tool is turned off—all automatically. Get all the facts on this Profit-Building Winco feature.

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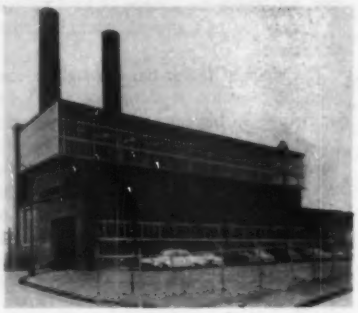
Municipal Incinerator, Functional and Attractive



The Louisville refuse incinerator of brick and glass sidewall always has a "clean look" that conceals the functional purpose for which it was built. Over 8,000 square feet of white corrugated wire glass, furnished by Pennsylvania Wire Glass Company, were used in sidewall construction by the architects and engineers, Joseph and Joseph of Louisville, Ky.; the aim — to permit maximum daylight for plant operation and uniform diffusion of bright, concentrated light over work areas. To provide a safety feature against excessive breakage, corrugated glass with wire was also selected. Used with this wire glass are .032 aluminum accessories. In combination, they assure minimum maintenance for the City of Louisville's municipal incinerator.

For additional information, write the PENNSYLVANIA WIRE GLASS COMPANY, FOX BLDG., 162 MARKET ST., PHILADELPHIA 3, PA., or you may use the Post Card on the insert following Page 54. Circle No. 768.

New Elbow for House Sewer Systems

A new 30-degree building sewer fitting, developed by Johns-Manville, will give greater freedom to designers of house sewer systems.

The epoxy-bonded elbow, which is made of asbestos cement, embodies the Ring-Tite coupling principle to assure maximum tightness. It also features grooves with factory-inserted rubber rings that lock sections together to provide effective protection against root penetration.

The 30-degree fitting is to serve as a companion piece to the 60-degree Transite Wye Branch for sewer mains. In addition to the 30-degree elbow, Johns-Manville also offers elbows and bends of 11¼, 22½, and 45 degree turns.

For complete details, write JOHNS-MANVILLE CORP., 22 E. 40TH ST., NEW YORK 16, N. Y., of you may use the Post Card on the insert following Page 54. Circle No. 760.

GOLDAK'S 25th ANNIVERSARY PRIZE WINNING

Purchasing

Advancement in Sewer Cleaning

Sewer cleaning operations are simplified and efficient when Flexible's new Truck-Loder bucket machine is on the job. Its completely new design permits a truck to back up directly under the dumping head of the machine. Deposits are brought from the sewer to the truck in just 60 seconds. Hand shoveling and unsanitary sewer deposits, which add to the municipal street cleaning load, are eliminated, for the Truck-Loder dumps directly into the truck without spillage. Also eliminated, is the "extra man" in crew; cleaning with the bucket machine is a two-man job.

For details, write to the manufacturer, FLEXIBLE, INC., 3786 DURANGO AVE., LOS ANGELES 34, CALIF., or you may use the Post Card on the insert following Page 54. Circle No. 772.

One-Step Photocopier Works Fast

American Photocopy Equipment Company claims its newly-introduced copier to be the fastest photocopy machine in the office equipment field. Called the Unimatic "Auto-Stat," the one-step copier is said to be capable of reproducing an original document in one-third the normal operating time of currently available office photocopy units.

Several features simplify operator handling and step up efficiency. One is its unique one-step synchronized operation which permits the original copy and photocopy paper to be inserted only once, rather than twice, as in other models. After the paper has been exposed to the light source, the original is returned while the photocopy paper continues through the machine to be developed, and a ready-to-use copy automatically emerges. In this way the operator saves time by not having to re-insert tthe photocopy paper after exposure.

A faster motor, and a more intensified fluorescent light source, especially developed for Apeco by the General Electric Company, speeds up the operation cycle. Recent improvements in Apeco's photocopy

An outstanding example of Paddock excellence: 50 meter pool for British Empire Games, Vancouver, B.C.

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Almost forty years of highly specialized engineering stand back of each pool built and equipped by Paddock of California, no matter where the installation is made. That's because Paddock Pools are built by qualified and reputable builders who are licensed only upon subscribing to Paddock standards of quality... in engineering integrity, skilled construction craftsmanship and the finest equipment known. When calling for bids on public swimming pools, be sure to include the nearest licensed Paddock Pool builder. And for replacement of equipment, send for the Paddock Pool equipment catalog.

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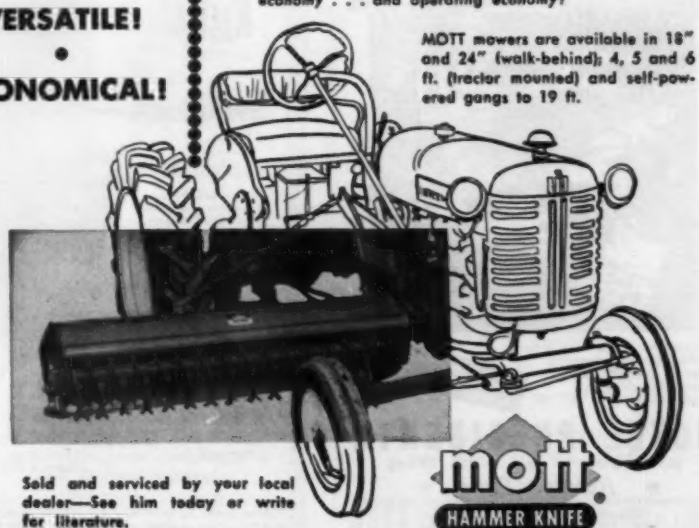
ONE MOWER... for all mowing jobs!

It's SAFE! • VERSATILE! • ECONOMICAL!

No danger of flying sticks, stones or other debris. Ideal for mowing areas where children are present—such as parks, parkways, playgrounds . . . and even vacant lots. It costs no more to buy the best! The unique MOTT "Hammer Knife" mower, rugged and simple in design, gives years of useful, trouble-free service. This means *economy* for you! First cost *economy* . . . maintenance *economy* . . . and operating *economy*!

MOTT mowers are available in 18" and 24" (walk-behind); 4, 5 and 6 ft. (tractor mounted) and self-powered gangs to 19 ft.



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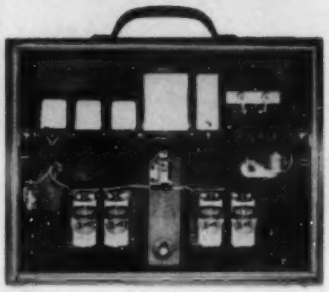
"Signalmaster"

MODEL TR-1

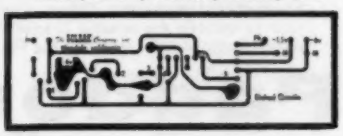
THE MOST EFFECTIVE PIPE LOCATOR OF THE CENTURY



SPECIFICATIONS:

Operating Weight
Transmitter — 4½ lbs.
Receiver — 4¾ lbs.
Circuit
Transmitter — one transistor
Receiver — six transistors
Batteries
Transmitter — 4 size C flashlight cells
Receiver — 4 size C flashlight cells
Sensitivity — 18 ft. depth range, approximately 200 ft. average tracing distance.

Again, Goldak proves their leadership in the locating field with this Transistorized Pipe Locator. Featuring Transistors, Printed Circuit Boards and Packaged Circuits for better locating; small sized Flashlight Batteries for maintenance savings...Transistors and other components encapsulated preventing temperature, humidity, shock, vibration problems. Designed for pinpoint detection of underground pipes, cables, mains, laterals, valves, etc.



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We'll do the rest to make your stay memorable

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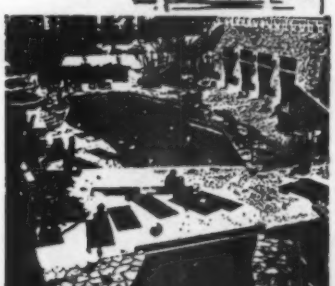
This fine, friendly hotel is newly remodeled and air-conditioned to give you the best Havana Holiday.



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Purchasing

paper and chemical concentrate also contribute to speedier operation. An increase of nearly 100% in performance without sacrifice of high quality is claimed to have been achieved with the new "Auto-Stat."

The desk-top Uni-matic photocopier has a horizontal color control dial called the Sweepline, which permits rapid selection of the finer settings for copying from any color paper or ink. The feed-in slot located below the control dial will accept originals up to 11 inches wide.

Weight of the unit is 34 pounds; height, 7 inches; length, 21 inches; depth, 13½ inches. All essential working parts of the "Auto-Stat" are made of stainless steel; the housing is of Melamine.

For additional information, write AMERICAN PHOTOCOPY EQUIPMENT COMPANY, EVANSTON, ILL., or you may use the Post Card on the insert following Page 54. Circle No. 757.

Loader and Traction Duo

Freeman Loader Corp. announces an industrial front-end loader for Ford and Ferguson tractors, and traction-flotation wheels for nearly all makes of tractors.

The loader has a frame of high carbon solid steel, and can lift a load of 1,750 pounds to a height of 10 feet (to bottom of bucket). All cylinders are double-acting, with chrome-plated rams. Hardened pins have zerk fittings and the bucket is available in three sizes.

Flotation wheels, called XTRA TRAX, give positive crawler-action to wheel-type tractors, and reduce slippage under soil conditions. They eliminate the need for wheel weights or fluid in tires, and are of steel construction. The wheels are easy to attach and need not be removed for operation on cement or surfaced roads.

For additional information, write FREEMAN LOADER CORP., BLAIR PIKE ROAD, PERU, IND., or you may use the Post Card on the insert following Page 54. Circle No. 771.

New Plant for Smith-Blair

A new 6,000-square foot assembly plant, warehouse and regional sales office has been opened in Henderson, Texas by the Smith-Blair, Inc., South San Francisco, Calif., according to an announcement from Telford L. Smith, president.

The new facilities were planned to provide better service for users and jobbers of Smith-Blair pipeline couplings, connections, and clamps in the midwestern, southern and southwestern areas of the country.

Purchasing

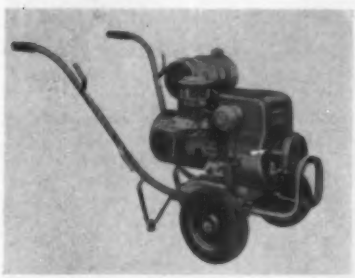
Portable, Direct-Current Electric Plant

D. W. Onan announces a brand new direct-current electric generating plant that is particularly suited for operating park maintenance tools, such as hedge trimmers and grass shears, as well as electric saws, drills, appliances and lights.

Municipal fire departments will find the 1,500-watt d.c. plant to be a dependable source of emergency power. Its rugged, 4-cycle, vertical one-cylinder gasoline-driven engine is air-cooled and rated at 2.80 hp at 2600 rpm. A mounted 1.4-gallon fuel tank is included as a standard feature.

The 105AK-115M, as it is called, is a completely self-contained unit, and because it operates at slower speeds than comparable high-speed a.c. units, offers the advantages of longer life, less maintenance and lower operating costs. Starting is by hand with a conventional pull rope, although a self-winding pull-rope starter is available at extra cost. Other optional features include a light-weight tubular-steel carrying frame kit, a 2-wheel dolly, and sturdy, heavy-duty waterproof canvas cover that fits snugly over the unit.

Net weight of the portable 105AK-115M generator is 144 pounds. For additional information, write D. W. ONAN & SONS INC., MINNEAPOLIS 14, MINN., or you may use the Post Card on the insert following Page 54. Circle No. 765.



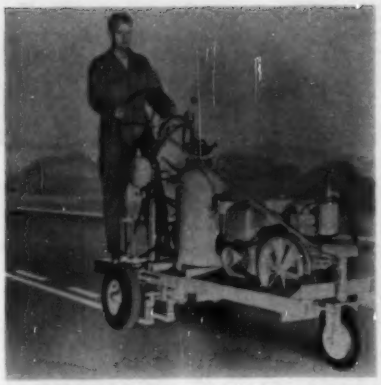
The Onan 105AK-115M dolly-mounted.

Allied Chemical Plans Name Change

Allied Chemical & Dye Corporation, one of the nation's large diversified chemical companies, plans to change its name to Allied Chemical Corporation.

It is believed by the Board of Directors that the proposed new name will more clearly reflect the broad nature of the company's position in the chemical industry and will not single out any one of the company's six Divisions or a particular field of activity.

The recommendations for change of name will require the affirmative vote of the holders of a majority of the outstanding common stock of the company, and if approved will become effective May 1.



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This Self-propelled

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LINE MARKER

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Users of the Mark-Rite Model 9,000 one man operated Line Marker report that it lays 25% to 50% more line per day than other machines.

This machine was designed for use in cities, airports, counties and for other heavy duty uses. Precision built throughout. One year guarantee against defects. Stripes 1, 2 or 3 lines solid or skip simultaneously. One or two colors. Paint capacity 10 to 60 gals. Automotive precision steering and "Hairline" spray control insures clean straight or curved lines, in widths from 2" to 6". It can turn on a 6-foot radius.

Accessories permit many other uses for this versatile machine, such as spray painting, insect and weed control spraying. Write today for literature or demonstration.

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Makes a Hit With Water Works Men

Cuts Pipe In or Out of Ditch

TWO SIZES

No. 01 for 4" to 8" Pipe
No. 1 for 4" to 12" Pipe

Write for Circular and Price List No. 40AC

ELLIS & FORD MFG. CO.
FERNDALE 20, MICH.

About People

Rudolph F. Hanson has been appointed assistant director of sales of Materials Handling Equipment for the Ingersoll Kalamazoo Division of **Borg-Warner Corporation,** according to David H. Cissna, director of sales.

Notice has been received of the promotion of Van B. Phillips from assistant to general sales manager of **Recordak Corporation,** New York City. Mr. Phillips has been with Recordak since 1936.

G. K. Ray **Leo M. Arms**

George H. Paris, director of promotion planning and engineering, **Portland Cement Association,** has announced the appointment of Gordon K. Ray as manager of the Highways and Municipal Bureau of the Association. He succeeds Leo M. Arms, who has been named technical advisor, Highways and Municipal Bureau.

William F. Boyle is the new general manager of the Hamilton Division, Hamilton, Ohio, of **Baldwin-Lima-Hamilton Corporation.** Mr. Boyle, who is a vice president of the Philadelphia concern, had been general manager of the company's Pelton Division, San Francico. His successor is Ira Morgan White, who has been elected a vice president of the corporation.

The Construction Machinery Division, Clarke Equipment Company, Benton Harbor, Mich., has appointed Donald C. Feys a special field representative. He will service northeastern United States and Canada.

Huber-Warco Company, Marion, Ohio, announces the appointment of Larry J. Weiser as a district sales representative. Mr. Weiser has been with the company since 1940, most recently as assistant purchasing agent.

From D. G. Griswold, president of **Cla-Val Co.,** Newport Beach, Calif., comes word of the appointment of Howard Edwards as national sales manager for the company's newly formed Waterworks Division. Mr. Edwards is the former vice president in charge of sales at Sparling Meter Co., with which he had been associated for 28 years.

Howard Edwards

The appointment of John E. Rooney as assistant media director in the Philadelphia Office of **Erwin Wasey, Ruthrauff & Ryan, Inc.,** has been announced by Frank Murphy, director of media in that office.

Yeomans Brothers Company, Melrose Park, Ill., announces the appointment of Spaulding A. Norris as general sales manager to head the pump and sewage treatment divisions as well as the residential and industrial sales departments.

New director of research and development at **De Laval Steam Turbine Company,** Trenton, N. J., is Dr. Karol Pilarczyk.

Word from **Allis-Chalmers Manufacturing Co.,** Milwaukee, Wis., is that E. F. Greiwe has been named manager of the Norwood Works centrifugal pump department.

A. E. Williams, general sales manager of the **Robinson Clay Product Co.,** Akron, Ohio, has been elected to its Board of Directors.

From **B-I-F Industries, Inc.,** Providence, R. I., we learn that Cornelius S. Gooch has been appointed a service engineer for the corporation's Dallas office.

T. A. Haller, vice president in charge of engineering, **J. I. Case Company,** Racine, Wis., has announced the appointment of Carl von Linsowe as chief engineer of the company's Crawler Tractor Works, Churubusco, Ind.

J. W. Hardesty has been appointed general manager-sales of the Construction Equipment Division, **Baldwin-Lima-Hamilton Corporation,** Lima, Ohio, according to Henry Barnhart, vice president and general manager. Another announcement concerns Howard W. Read, named manager of parts and service, and William Lutes, named parts sales manager. Mr. Read will coordinate parts and service policies with Mr. Lutes and Robert Mallett, service manager.

Word from Norman Barr, general sales manager of the Asbestos-Cement Pipe Division of **Keasbey & Mattison Company,** Ambler, Pa., announces the appointment of Alan F. Nagle as manager of the company's Tubular Products and Sewer Pipe Sales Department.

E. R. Torgler, works manager, has been promoted to the position of director of manufacturing for the **Dresser Manufacturing Division** (and its subsidiaries), one of the Dresser Industries, Inc., Bradford, Pa.

An announcement from Edward F. Fisher, president, informs us that Angus J. O'Brien, vice president and director of engineering, and Joseph R. Hager, Jr., vice president and director of manufacturing, have been elected members of the Board of Directors of **Gar Wood Industries, Inc.**

Three executive changes in the **Gamon Meter Division,** Newark, N. J., have been announced by **Worthington Corporation,** Harrison, N. J. William C. Flanders, general sales manager of the division for the past twenty years and since 1951 assistant general manager, has been appointed general manager. Andrew K. Richardson, regional sales manager in the Chicago area, has been named to succeed Mr. Flanders as sales manager. Roy A. Saylors succeeds to Mr. Richardson's Chicago post.

William Flanders

James E. Kurtz has been appointed advertising manager of **Pacific Flush-Tank Co.,** Chicago, Ill.

R. G. Smith **E. B. Kelly**

Richard G. Smith has been appointed district representative for **The Galion Iron Works & Mfg. Co.,** Galion, Ohio, in the states of Illinois, Indiana, Michi-

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gan and Wisconsin. He takes over the territory formerly covered by Elmer B. Kelly, who will continue to service the northwest part of Ohio.

E. L. Barber has been assigned to cover the New Jersey territory for **United Metal Cabinet Corp.**, Pottsville, Pa. He will continue to service the areas of Delaware, Maryland, Pennsylvania, Virginia, West Virginia and the District of Columbia.

The Yale & Towne Manufacturing Co., Philadelphia, Pa., announces the appointment of Gerald A. Tamblyn as sales manager of the new industrial tractor shovel line being introduced by Yale Handling Division.

The national sales manager of **American Photocopy Equipment Company**, Chicago, Ill., is Leslie C. Overlock, who will direct sales for the company's Photocopy Division, according to a recent announcement by Lloyd A. Briggs, executive vice president of APECO. Mr. Overlock joined the office equipment firm in 1952 as a regional sales manager; in 1955 he was appointed assistant national sales manager, the post he held until his current advancement.

Leslie C. Overlock

J. L. Brown, vice president and general sales manager for the **American Vitrified Products Company**, Cleveland, Ohio, has announced the appointment of William E. Bussen as St. Louis district manager.

Howard G. Egginson has been named district manager in New England of the **Graver Water Conditioning Co.**, Division of Union Tank Car Company, New York City. Headquarters for Mr. Egginson will be Boston, Mass.

The Union Metal Manufacturing Co., Canton, Ohio, announces the appointment of L. F. Heckmann as general sales manager. Mr. Heckmann succeeds D. B. Hanna, former vice president in charge of sales, who retired.

Two executive appointments have been announced by **Allis-Chalmers Mfg. Co., Tractor Group**, Milwaukee, Wis. W. J. Klein, a vice president of Allis-Chalmers, has been named director of sales promotion, Tractor Group. He was formerly director of sales. R. L. Smith, who has been radio director for the Tractor Group since 1948, is now manager of advertising for the Group's three divisions—Farm Equipment, Construction Machinery, Engine-Material Handling.

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Responsibility for providing Rock Island with pure water is only one of the duties of Mr. Harley Boeke, Director of Utilities.

You Can't Generalize About City Engineers

In many small municipalities the man called city engineer carries as many as four other titles and personally supervises street maintenance, water supply, waste disposal, and parks. On the other hand, in bigger cities the city engineer works with other engineering-trained associates like Harley Boeke of Rock Island, Illinois. Mr. Boeke is called Director of Utilities, in charge of water works and sewage treatment.

Mr. Boeke tells why city engineers and department heads continue to prefer THE AMERICAN CITY: "As a city official concerned with engineering and technical matters, I find the articles and ads in THE AMERICAN CITY of great value. They keep me informed on both proven and newly developed products, processes and methods. My professional knowledge has grown from studying the case-history solutions to engineering problems of both small and big cities."

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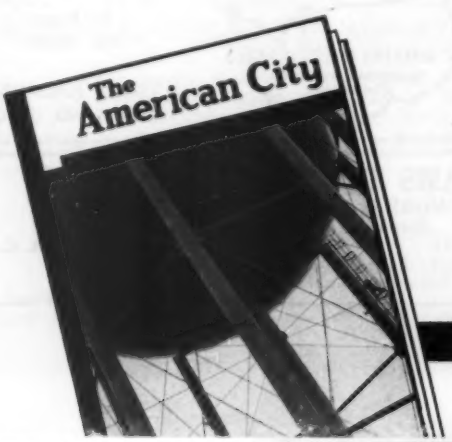

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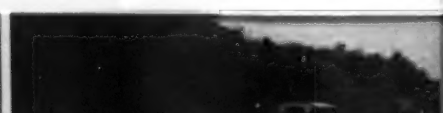

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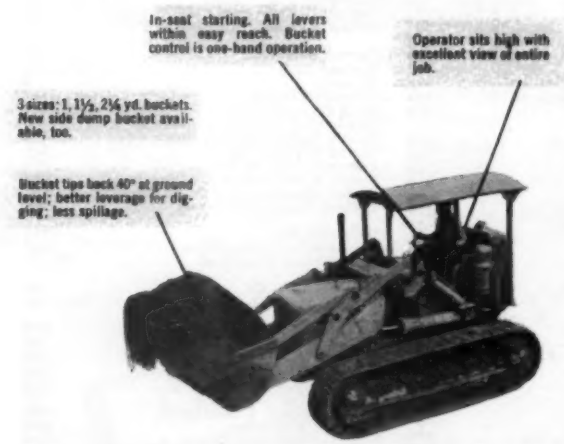
14 trucks bring garbage to Winston-Salem's fifth sanitary landfill where CAT No. 977 Traxcavator scoops up refuse and compacts it firmly. This landfill serves 10 sq. mi. of Winston-Salem.

Fast-moving Traxcavator digs out earth to cover garbage, then spreads and compacts dirt. Refuse is covered every night with 4 to 6 in. of soil, then topped with 2-ft. cover. Area shown will soon be new airport runway.

In Winston-Salem, sanitary landfill saves money and reclaims 5 different sites...*so far*

"Our budget is now less to operate two landfills than for an incinerator. And our Traxcavator is ideal for every landfill operation—digging, covering and compacting."—Director of Public Works


In-seat starting. All levers within easy reach. Bucket control is one-hand operation.
Operator sits high with excellent view of entire job.
3 sizes: 1, 1½, 2¼ yd. buckets. New side dump bucket available, too.
Bucket tips back 40° at ground level; better leverage for digging; less spillage.

Competitive demonstration sold this Caterpillar No. 977 Traxcavator

Of 3 bids, Caterpillar's was high. But city officials wanted to see all 3 makes of machines in action, on an actual city job. There they saw what they couldn't see on paper — the superior agility and higher production of the Traxcavator. They knew that Cat-built machines are recognized for longer life, with less maintenance, which means lowest *final cost*. A demonstration on your job can prove all this. All it takes is a phone call to your Caterpillar Dealer.

When Winston-Salem adopted a modern sanitary landfill method of garbage disposal, the city found it could use its old incinerator area as an athletic field. That was just the first of five—so far—sites put to use as a result of sanitary landfill.

No. 2 was a school playground that used to flood with every rain. Now, it's high and dry. No. 3 is the city's own equipment storage yard, reclaimed from an unused low area. No. 4 will soon be a 1,200-car parking lot at Bowman Grey Stadium. Now No. 5 is on the way: a runway extension at Smith-Reynolds Airport.

Not only does the city benefit from this reclamation, but "landfill is definitely more economical than an incinerator," according to R. W. Neilson, Director of Public Works. "We keep two landfills going for less than the cost of our incinerator."

Would you like complete information about sanitary landfill? Just write Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

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...THE TROJAN 4 CU. YD. MODEL 404

Newest and largest — this describes perfectly the Trojan Model 404 tractor shovel . . . This 4 cu. yd. power package is a machine that will top the operating demands of even the hardest users . . . and deliver tremendous yardages with minimum effort . . . Like the 154, 104 and LHM-75, the same high standards of workmanship and materials have gone into the new '404' plus the ability to deliver the same superior performance on the really big jobs. Like all Trojan models, safety is of prime concern and the '404' also features reverse curve safety arms and such job-proven operating aids as low-load carrying position, independent bucket action, straight line horizontal thrust, automatic neutral return and four wheel air brakes . . . Power is supplied by a GM series 6-71 diesel — an economical, low-maintenance power supply. Ask for a '404' demonstration any place — any time!

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2 & 4 Wheel Drive Front-End Loaders

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Emergency Specialist—Hartford, Conn.

Michigan moves "at a moment's notice" from trenching to scattered repair jobs

Like many cities, the Water Bureau in Hartford, Connecticut, has to be ready to fix breaks in service at any time. Their No. 1 emergency tool is this Model T-20 Michigan excavator crane, used primarily to dig trenches. "The Michigan can take off at a moment's notice," explains Warren Gentner, chief engineer. It goes everywhere under its own power, at traffic speeds. Its narrow 8′ overall width makes it easy to drive in traffic . . . its light 43,900 lb overall weight (as a back-hoe) allows it to cross almost any bridge. It can go *off* the road too. Clark's rugged, well-balanced carrier and the Clark planetary-wheel axles take it through mud and snow that would stop almost any other rubber-tired vehicle.

Eliminates trailer delays

"You might call Michigan mobility our insurance policy," continues Mr. Gentner. "I remember one time a water main broke eight miles from where the Michigan was working. A mobile radio call, and over it came. Thanks primarily to the Michigan, excavation for repairs was started within an hour. If we had depended on a crawler unit, repairs would have been delayed several hours—*if* we could have gotten a trailer. Believe me, trailers aren't always easy to get hold of, especially at night."

Lifts 24" iron pipe

Besides mobility, Water Bureau officials like Michigan's versatility, lifting ability, and remote control drive. In normal operation, Michigan works either with a *half-yard back-hoe* digging trenches, or with *40 ft crane boom* setting heavy fittings, or with *clamshell bucket* where back-hoe can't be used. "I sure like Michigan's lifting ability," says L. E. Clinton, mechanical superintendent. "With the hoe-boom, it easily handles 18 ft lengths of 24 inch cast iron pipe. And it does the job *without outriggers!*"

Cuts labor needs in half

"*Remote control* comes in handy, too," continues Mr. Clinton. "Operator can move right on down the line as he trenches—without another man in the driver's cab. We figure this is an easy way to save the cost of a second operator."

Write for specifications

If *you* would like to save tax dollars —and at the same time improve your emergency service—why not investigate the 35 mph Model T-20 Michigan? A postcard will bring you specifications for your files. Write or call us today.

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